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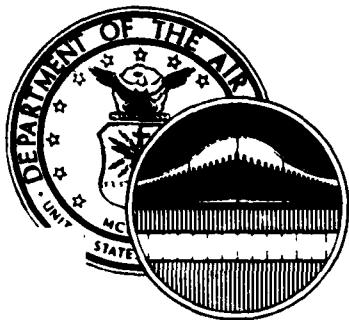
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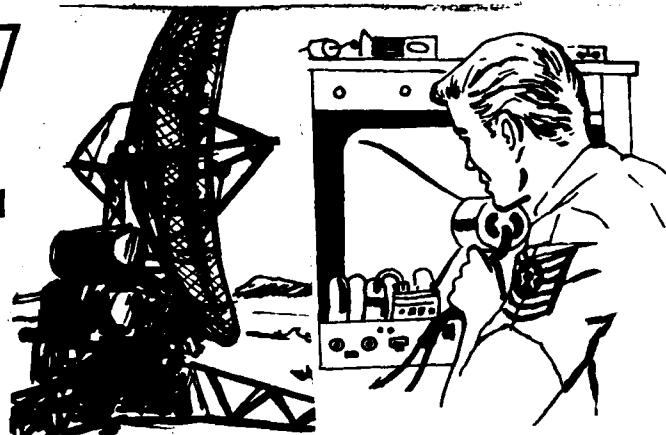
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UNITED STATES AIR FORCE

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OCCUPATIONAL SURVEY REPORT



AIR TRAFFIC CONTROL RADAR SPECIALTY
AFS 303X1.

Vol. 1

VOL. II OF IV

AFPT-90-303-400

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OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT CENTER
AIR TRAINING COMMAND
RANDOLPH AFB, TEXAS 78148

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Job Title: <u>JOINT AIR FORCE STAFF</u>	
By: <u>JOHN R. COOPER</u>	
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PREFACE

This report presents the results of a detailed Air Force Occupational Survey of the Air Traffic Control Radar specialty (AFS 303X1). The project was directed by USAF Program Technical Training, Volume 2, dated June 1979. Authority for conducting occupational surveys is contained in AFR 35-2. Computer printouts from which this report was produced are available for use by operating and training officials.

The Air Force occupational analysis program has been in existence since 1956 when initial research was undertaken by the Air Force Human Resources Laboratory (AFHRL) to develop a methodology for gathering and analyzing occupational information. In 1967, an operational occupational analysis program was established within the Air Training Command and surveys were produced annually for 12 enlisted specialties. In 1972, the program was expanded to conduct occupational surveys covering 51 career fields annually. In late 1976, the program was again expanded to include the survey of officer utilization fields, to permit special management applications projects, and to support interservice or joint service occupational analyses.

The survey instrument used in the present project was developed by Chief Master Sergeant Robert Wing, Inventory Development Specialist. Captain Michael Hill, First Lieutenant Gordy Curphy, and Second Lieutenant John Tierney analyzed the survey data and First Lieutenant Gordy Curphy wrote the final report. This report has been reviewed and approved by Lieutenant Colonel Jimmy L. Mitchell, Chief, Airman Career Ladders Analysis Section, Occupational Analysis Branch, USAF Occupational Measurement Center, Randolph AFB, Texas 78148.

Copies of this report are available to air staff sections, major commands, and other interested training and management personnel upon request to the USAF Occupational Measurement Center, attention to the Chief, Occupational Analysis Branch (OMY), Randolph AFB, Texas 78148.

This report has been reviewed and is approved.

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SUMMARY OF RESULTS

1. Survey Coverage: Inventory booklets were administered to Air Traffic Control Radar (AFS 303X1) personnel worldwide. Survey results are based on the responses from 750 AFS 303X1 incumbents (62 percent of assigned). A majority of the incumbents were assigned to AFCC.
2. Career Ladder Structure: DAFSC 303X1 personnel were found to be performing a wide variety of jobs. ATC Radar Maintenance Personnel, Precision Approach Radar Personnel, Ancillary Maintenance Personnel, and Electrical Installation Team Members are performing a technical radar maintenance or installation type of job. Job Control Personnel, Radar Maintenance Supervisors, Quality Control Personnel, and Resident Course Instructors perform jobs involving some aspect of supervision, training, or administration.
3. Career Ladder Progression: Three-skill level personnel are primarily radar technicians, and general and preventive maintenance tasks are indicative of these personnel. DAFSC 30351 personnel also spend a majority of their job time performing radar maintenance, but also spend 20 percent of their time on supervisory or administrative type tasks. Seven-skill level incumbents are first-line supervisors, and roughly divide their time between radar maintenance and supervisory tasks. Finally DAFSC 30399 personnel are middle level supervisors or managers, and spend almost all their time performing supervisory and management duties.
4. TAFMS Groups: The typical trend of increasing percentage of time spent on supervisory tasks with increasing months TAFMS was noted. A review of job satisfaction indicators reveals that first enlistment (1-48 months TAFMS), second enlistment (49-96 months TAFMS) and career (97+ months TAFMS) 303X1 personnel are much more satisfied with their job than personnel in comparable career ladders. Also, first enlistment personnel were identified as performing a variety of jobs, with general and preventive maintenance tasks being performed by the highest percentages of these incumbents.
5. Analysis of CONUS Versus Overseas Groups: Overall, the jobs performed by these two groups of DAFSC 30351 personnel were fairly similar. However, tasks involving multiplexers and demultiplexers were performed by greater percentages of CONUS respondents, while several tasks involving search radar converters were performed by higher percentages of overseas personnel.
6. Major Command Comparison: AFCC personnel made up a majority of the personnel sampled and were differentiated by the somewhat broader type of job they performed. TAC personnel performed a job similar to AFCC personnel, but a slightly higher percentage perform tasks involving azimuth blankers or computers. Air Training Command (ATC) personnel were responsible for conducting resident course classroom training.

7. Training Analysis: The 3-, 5-, 7-, and 9-skill level AFR 39-1 Specialty descriptions were found to provide a clear overview of the 303X1 career ladder. The STS, dated January 1977, appears comprehensive. The POI for the basic resident course (3ABR30331, January 80) appears to provide adequate and comprehensive training for new personnel entering the 303X1 specialty. The proposal to channelize basic resident training into four courses was examined using occupational survey data. The data does not support a channelization proposal; however, some qualifying factors must be taken into consideration when evaluating this information.

8. Implications: Personnel in the 303X1 career ladder were found to be performing a fairly wide variety of jobs, but a majority of these personnel can be found performing maintenance on different types of ATC radars. A review of job satisfaction indicators reveals that, overall, 303X1 first enlistment personnel are much more satisfied with their job than similar personnel in other related career fields. Job satisfaction data also reveals Job Control Personnel have fairly low job satisfaction indicators. Air Force managers and supervisors should try and find ways to improve the narrow and routine job these personnel perform.

OCCUPATIONAL SURVEY REPORT
AIR TRAFFIC CONTROL RADAR SPECIALTY
(AFS 303X1)

INTRODUCTION

This is a report of an occupational survey of the Air Traffic Control Radar (AFS 303X1) specialty, completed by the Occupational Analysis Branch, USAF Occupational Measurement Center, in February 1981. The survey was initiated at the request of the Air Force Manpower and Personnel Center Classification Branch (AFMPC/MPCRPQ) to determine the feasibility of merging three radar maintenance specialties (AFSs 303X1, 303X2, and 303X3) into a common specialty. In order to properly address this issue, personnel in all three specialties were surveyed using a common job inventory. The feasibility of merging the three specialties and other types of analyses across the three career ladders are presented in a combined report (AFPT 90-303-400, Volume I). This report concentrates primarily on the results relating to the Air Traffic Control Radar (AFS 303X1) specialty. Detailed results of the Aircraft Control and Warning Radar (AFS 303X2) and Automatic Tracking Radar (AFS 303X3) specialties are provided in two separate reports (AFPT 90-303-400, Volumes III and IV).

Background

As outlined in the current AFR 39-1 Specialty Descriptions, Air Traffic Control Radar personnel are responsible for installing, maintaining, and repairing air traffic control radar, associated communications equipment, radar beacon systems, remoting devices, and vanized air traffic control radars. The types of radar these personnel maintain are used for surveillance of air traffic around an airfield and to help guide aircraft using instrument approaches to the runway. These incumbents are usually assigned to the base level and concentrate on maintaining base air traffic control radars in support of base functions. Generally, the number of 303X1 personnel located at any one base depends on the size of the base and the types of radar equipment found at the base.

Historically, the 303X1 career ladder was created in 1953 under the title "Air Traffic Control Radar Specialists." No major classification changes have occurred since then. A minor name change occurred in 1979, changing the word "Specialist" to "Repairman." The 9-skill level was first created in 1960 as 30390. Over the years, it has undergone several DAFSC designation changes. In 1970, the designation changed to DAFSC 30393 and in 1979 the designation changed again to DAFSC 30399, which is currently in use.

Formal training for personnel entering the 303X1 specialty is available at Keesler AFB MS. This is a 147-day course in which future Air Traffic Control Radar Repairmen are oriented in the areas of: electronic principles, antennas, power supplies, timing systems, and preventive maintenance techniques. Upon completion of the course, graduates are awarded a 3-skill level and are assigned to various units worldwide.

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Objectives

This report will primarily examine the Air Traffic Control Radar specialty (AFS 303X1) on the basis of the tasks performed by the survey respondents. However, it is important to note that the survey instrument utilized for this report was a combined 303X1, 303X2, and 303X3 survey. The results of the 303X2, 303X3, and joint 303X1, 303X2, and 303X3 analyses are presented in three separate reports (AFPT 90-303-400 Volumes I, III, and IV). It is highly recommended that users of this report also examine the other three reports in order to better assess the 303X1 specialty. Topics discussed in this report include: (1) development and administration of the survey instrument; (2) the jobs performed by 303X1 personnel; (3) CONUS versus overseas differences; (4) comparisons of the job structure to current AFR 39-1 Specialty Descriptions, the Specialty Training Standard (STS), and Plan of Instruction (POI); and (5) job satisfaction and other related background data.

SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory AFPT 90-303-400. As a starting point, the tasks listed in the 1977 303X1, the 1978 303X2, and the 1977 303X3 job inventories were reviewed for currency by the Inventory Development Specialist and two Instructors from each specialty at Keesler AFB MS. They then reviewed all pertinent career ladder publications and directives for additional radar related tasks. This tentative task list was then reviewed for completeness and accuracy by 30 303X1, 303X2, and 303X3 personnel at Nellis AFB NV, Tinker AFB OK, Peterson AFB CO, and LaJunta AFS CO. The resulting task list was reviewed again by Keesler Technical Training Instructors from all three AFSCs who sat in a face-to-face encounter to insure the tasks were representative of the jobs performed by 303X1, 303X2, and 303X3 personnel. This encounter helped to insure that the skills and knowledges needed to perform a task were the same, regardless of the equipment associated with the task. For example, wiring diagrams of radar equipment using klystrons were presented during the encounter, and the Training Instructors debated on whether the skills and knowledges need to isolate malfunctions on one type of equipment was essentially the same as the other types of equipment. If the skills and knowledges were similar, then only one task was written, such as "isolate diplexer malfunctions". If the skills and knowledges differed to some degree, then a number of more equipment specific tasks were written, such as "isolate klystron malfunctions in search radars." Another example of this type of commonality discussion centered around components of various systems. In this study there was a consensus that most components removed and replaced required the same skill no matter what system they were located in. For example, the task "remove or replace duplexers" indicates that the skill is the same no matter what equipment it is located in.

This process resulted in a final job inventory of 1,324 tasks grouped under 20 duty headings. In addition, a background section was included which asked for information about each respondent, such as grade, Total Active Federal Military Service (TAFMS), duty title, job interest, and the type of radar system maintained or operated.

Job Inventory Administration

During the period May through September 1980, Consolidated Base Personnel Offices in operational units worldwide administered the inventory to all job incumbents holding a DAFSC of 303X1, 303X2, 303X3, or 30399. These job incumbents were identified using AFMPC personnel data tapes available through the Air Force Human Resources Laboratory (AFHRL).

Each individual who filled out an inventory first completed an identification and biographical information section and then checked each task performed in their current job. After checking all tasks performed, each member then rated each of these tasks on a nine-point scale showing relative time spent on the task as compared to all other tasks checked. The ratings ranged from one (very small amount of time spent) through five (about average time spent) to nine (very large amount time spent).

To determine relative time spent for each task checked by a respondent, all of an incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task is then divided by the total task ratings and multiplied by 100. This procedure provides a basis for comparing tasks in terms of both percent members performing and relative percent time spent.

Task Factor Administration

In addition to completing a job inventory, selected senior 303X1 personnel were also asked to complete a second booklet for task difficulty. The task difficulty booklets are processed separately from the job inventories. This information is used in a number of different analyses discussed in more detail within the report.

Task Difficulty. Each senior NCO completing a task difficulty booklet was asked to rate all of the tasks on a nine-point scale from extremely low to extremely high as to the relative difficulty of that task. Difficulty is defined as the length of time it requires an average member to learn to do that task. Task difficulty data were independently solicited from experienced 7- or 9-skill level personnel stationed worldwide in each specialty. The interrater reliability (as assessed through components of variance of standard group means) for the 40 DAFSC 303X1 raters who returned booklets was .92, which suggests very high agreement. Ratings were then adjusted so that tasks of average difficulty have ratings of 5.0. The resulting data is a rank ordering of tasks indicating a degree of difficulty for each task in the inventory.

Job Difficulty Index. After computing the task difficulty index for each item, it is then possible to compute a Job Difficulty Index (JDI) for the job groups identified in the survey analysis. This index provides a relative measure of which jobs, when compared to other jobs identified, are more or less difficult. An equation using the number of tasks performed and the average difficulty per unit time spent as variables are the basis for the JDI. This index ranges from one for very easy jobs to 25 for very difficult jobs. The data are adjusted so that the average job difficulty index is 13.00. Thus, the more time a group spends performing difficult tasks, and the more tasks they perform, the higher will be their job difficulty index. The JDI ratings for the 303X1 career ladder can be found in the CAREER LADDER STRUCTURE and Appendix A of this report.

When used in conjunction with other factors, such as percent members performing, the task difficulty ratings can provide insight into the training requirements of a specialty. This may help validate the lengthening or shortening of specific units of instruction when refining various training programs.

Survey Sample

Personnel were selected to participate in this survey so as to insure an accurate representation across all MAJCOM and paygrade groups. In this study, all incumbents with a 303X1 DAFSC were solicited for their responses. Table 1 reflects the major command distribution of personnel assigned to the 303X1 career ladder as of the fall of 1980. Table 2 reflects the percentage distribution by paygrade. Table 3 reflects the distribution of the survey sample in terms of TAFMS groups. Overall, a representative sample was obtained, with 750 of the 1,219 respondents (62 percent) assigned to this career ladder sampled.

Data Processing and Analysis

Once job inventories are returned from the field, they are prepared so that task responses and background information can be optically scanned. Other biographical information (such as name, base, autovon extension) is keypunched onto disks and entered directly into the computer. Once both sets of data are in the computer, they are merged to form a complete case record for each respondent. Computer generated programs using Comprehensive Occupational Data Analysis Programs (CODAP) techniques were then applied to the data.

CODAP produces job descriptions of respondents based on their responses to specific inventory tasks. Computer generated job descriptions are available for DAFSC groups, TAFMS groups, and MAJCOM groups, and include such information as percent members performing each task, the average percent time spent performing each task, the percent members utilizing various pieces of equipment, and the cumulative average percent time spent by all members for each task in the inventory.

TABLE 1
COMMAND DISTRIBUTION OF SURVEY SAMPLE

<u>MAJOR COMMAND</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
AFCC	92	88
ATC	5	6
OTHER	<u>3</u>	<u>6</u>
TOTAL	100	100

TOTAL 303X1 ASSIGNED - 1,219
TOTAL 303X1 SAMPLED - 750
PERCENT OF 303X1 SAMPLED - 62%

TABLE 2
PAYGRADE DISTRIBUTION OF SURVEY SAMPLE

<u>PAYGRADE</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
AIRMAN	25	23
E-4	24	28
E-5	30	29
E-6	13	13
E-7	8	7
E-8	<u>*</u>	<u>*</u>
TOTAL	100	100

* INDICATES LESS THAN ONE PERCENT

TABLE 3
TAFMS DISTRIBUTION OF SURVEY SAMPLE

	MONTHS TIME IN SERVICE			
	<u>1-48</u>	<u>49-96</u>	<u>97+</u>	<u>TOTAL</u>
NUMBER IN AFS 303X1 SAMPLE	253	218	279	750
PERCENT OF AFS 303X1 SAMPLE	34%	29%	37%	100%

CAREER LADDER STRUCTURE

The structure of jobs within the Air Traffic Control (ATC) Radar career ladder was examined on the basis of similarity of tasks performed and the percent of time spent ratings provided by job incumbents, independent of specialty or other background factors.

For the purpose of organizing individual jobs into similar units of work, an automated job clustering program is used. This hierarchical grouping program is a basic part of the Comprehensive Occupational Data Analysis Program (CODAP) system for job analysis. Each individual job description in the sample is compared to every other job description in terms of tasks performed and the relative amount of time spent on each task in the job inventory. The automated system is designed to locate the two job descriptions with the most similar tasks and percent time ratings and combine them to form a composite job description. In successive stages, new members are added to initial groups or new groups are formed based on the similarity of tasks and percent of time ratings in each individual job description. This procedure is continued until all individuals and groups are combined to form a single composite representing the total sample. The resulting analysis of the variety of groups of jobs serves to identify: (1) the number and characteristics of the different jobs which exist within the career ladder; (2) the tasks which tend to be performed together by the same respondents; and (3) the breadth or narrowness of the jobs which exist within the Air Traffic Control Radar career ladder.

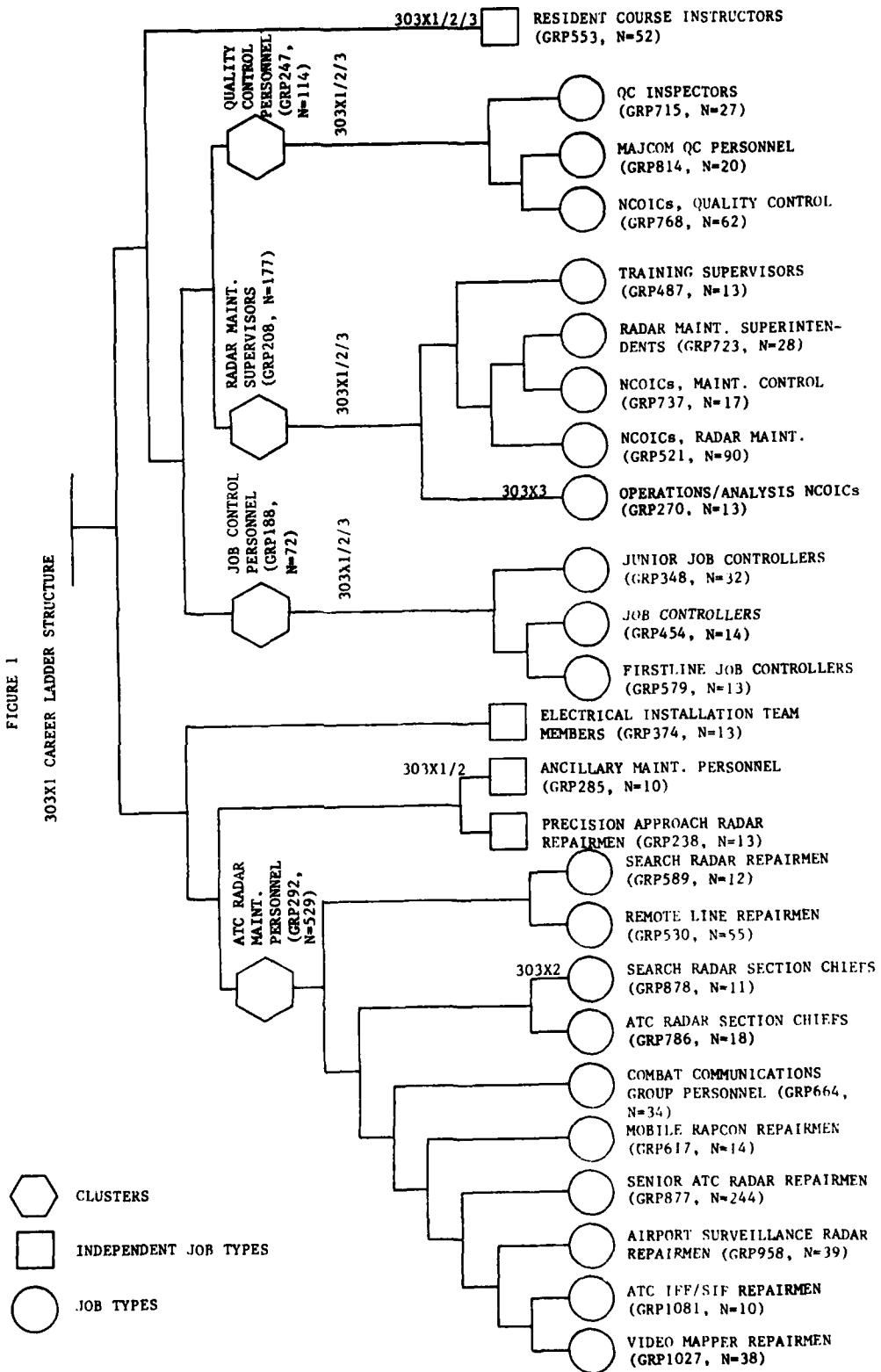
The basic identifying group used in the hierarchical job structuring process is the Job Type. A job type is a group of individuals who perform many of the same tasks and spend similar amounts of time performing them. When there is a substantial degree of similarity between different job types, they are grouped together and labeled as Clusters. In many career fields, there are specialized job types that are too dissimilar to be grouped into any cluster. These unique groups are labeled Independent Job Types.

The jobs performed by ATC Radar career ladder incumbents are illustrated in Figure 1. Based on the similarity of tasks performed and the amount of time spent performing each task, four clusters and four independent job types were identified. These clusters and independent job types are listed on the following pages:

I. AIR TRAFFIC CONTROL (ATC) RADAR MAINTENANCE PERSONNEL (GRP292, N=529)

- a. Video Mapper Repairmen (GRP1027, N=38)
- b. ATC IFF/SIF Repairmen (GRP1081, N=10)
- c. Airport Surveillance Radar Repairmen (GRP958, N=39)
- d. Senior ATC Radar Repairmen (GRP877, N=244)
- e. Mobile RAPCON Repairmen (GRP617, N=14)
- f. Combat Communications Group Personnel (GRP664, N=34)
- g. ATC Radar Section Chiefs (GRP786, N=18)
- h. Search Radar Section Chiefs (GRP878, N=11)
- i. Remote Line Repairmen (GRP530, N=55)
- j. Search Radar Repairmen (GRP589, N=12)

FIGURE 1
303X1 CAREER LADDER STRUCTURE



- II. PRECISION APPROACH RADAR REPAIRMEN (GRP238, N=13)
- III. ANCILLARY MAINTENANCE PERSONNEL (GRP285, N=10)
- IV. ELECTRICAL INSTALLATION TEAM MEMBERS (GRP374, N=13)
- V. JOB CONTROL PERSONNEL (GRP188, N=72)
 - a. Firstline Job Controllers (GRP579, N=13)
 - b. Job Controllers (GRP454, N=14)
 - c. Junior Job Controllers (GRP348, N=32)
- VI. RADAR MAINTENANCE SUPERVISORS (GRP208, N=177)
 - a. Operations/Analysis NCOICs (GRP270, N=13)
 - b. NCOICs, Radar Maintenance (GRP521, N=90)
 - c. NCOICs, Maintenance Control (GRP737, N=17)
 - d. Radar Maintenance Superintendents (GRP723, N=28)
 - e. Training Supervisors (GRP487, N=13)
- VII. QUALITY CONTROL PERSONNEL (GRP247, N=114)
 - a. NCOICs, Quality Control (GRP768, N=62)
 - b. MAJCOM QC Personnel (GRP814, N=20)
 - c. QC Inspectors (GRP715, N=27)
- VIII. RESIDENT COURSE INSTRUCTORS (GRP553, N=52)

The respondents forming these job types and clusters account for 82 percent of the 303X1 survey sample. The remaining 18 percent did not group with any of the clusters or job types described above. Some of the titles held by the remaining 18 percent were: ATC Radar Evaluation Technician, Air Traffic Control Radar Specialist, ATC Radar Repairmen, BRITE II Maintenance Repairman, Radar Repairman, Flight Facility Maintenance Superintendent, Instructor, and Escort Guard. These personnel did not group with any cluster or job type because of either the unique job they performed or in the manner in which they perceived their job.

Overview

Generally, the career ladder is fairly homogeneous with respect to the technical jobs identified, with the type of ATC radar equipment maintained and the average number of tasks performed being key differentiating factors among the technical major job groups. The nontechnical jobs identified, such as Job Control Personnel or Resident Course Instructors, perform many types of administrative or supervisory type tasks, and perform very few radar maintenance related tasks. The nontechnical jobs performed are fairly heterogeneous, with few tasks being performed by substantial percentages of incumbents from all four nontechnical major job groups. In addition, the nontechnical jobs in which 303X1 personnel are found are also comprised of large percentages of both DAFSC 303X2 and 303X3 personnel.

Brief descriptions of each cluster and independent job type are presented below. In addition, there are three tables at the end of this section that provide additional information about the clusters and independent job types. Table 4 provides the relative percent time spent on each duty by the personnel in each of the groups identified. For example, Electrical Installation Team Members spend 39 percent of their job time performing radar system installation and removal functions, and spend two percent of their time maintaining antenna systems. Table 5 provides selective background information, such as DAFSC, average months TAFMS, MAJCOM, and the average number of tasks performed. For example, Precision Approach Radar Repairmen perform an average of 57 tasks and 93 percent hold the 3- or 5-skill level. Finally, Table 6 provides job satisfaction data for each major job group. These data suggest that the personnel in the Job Control Personnel cluster are fairly dissatisfied with their job, with only 51 percent finding their job interesting and 45 percent planning to reenlist.

Also included in this report are two appendices concerning the Air Traffic Control Radar Maintenance career ladder structure. Appendix A yields various duty, background, and job satisfaction information about the job types identified within each of the clusters found in the ATC Radar career ladder, in addition to a brief job description for each of the job types identified. Appendix B lists common tasks performed by members for each of the clusters and independent job types identified in this section.

I. AIR TRAFFIC CONTROL (ATC) RADAR MAINTENANCE PERSONNEL (GRP292). This cluster of 10 job types is the largest job group identified. Personnel in this cluster are primarily 3- or 5-skill level personnel, and 88 percent are assigned to AFCC. These 529 respondents are responsible for maintaining a variety of ATC radars and associated radar equipment, such as AN/GPA-131 Video Mapping Units, AN/FPN-16/61 Precision Approach Radars, AN/FPN-47 Airport Surveillance Radars, and AN/MPN-14H Mobile RAPCONs. Typical tasks performed by these incumbents when maintaining these radar systems include:

- perform PMIs on receivers
- perform PMIs on antenna equipment
- perform PMIs on IFF/SIF equipment
- align precision map generators
- align angle voltage generators
- perform moving target indicator system checks

These incumbents perform the highest average number of tasks (317) of all major job groups identified. In addition, these incumbents also perform the most difficult job (JDI equal to 19.1) of all major job groups. Job satisfaction data reveal these personnel seem fairly satisfied with their job, with 78 percent finding their job interesting and 86 percent perceiving their training is being utilized at least fairly well.

II. PRECISION APPROACH RADAR REPAIRMEN (GRP238). This independent job type of 13 personnel performs a job very similar to the major job group mentioned above. These respondents are also maintaining various types of ATC radars and associated equipment, such as the AN/FPN-16/61 or AN/FPN-47, but only perform an average of 57 tasks (versus 317 for ATC

Radar Maintenance Personnel). As expected, these incumbents are fairly junior, averaging only 33 months TAFMS and 77 percent are in their first enlistment. Typical tasks performed by these personnel include:

- perform PMIs on transmitter equipment
- perform soldering on circuit boards
- adjust voltage regulators
- remove or replace fuses or fuse holders
- perform PMIs on display equipment
- align precision magnetron transmitters

Eighty-five percent of these personnel are assigned to AFCC, and 92 percent are located in CONUS. As expected, these incumbents hold a rather low skill level, with 93 percent holding DAFSC 30331 or 30351. Job satisfaction indicators for these personnel are good, with 70 percent finding their job interesting and 53 percent planning to reenlist.

III. ANCILLARY MAINTENANCE PERSONNEL (GRP285). This independent job type is composed of both DAFSC 303X1 and 303X2 personnel, and both of these groups of personnel are performing many of the same tasks. These 10 incumbents (five of which hold DAFSC 303X1) spend 38 percent of their job time maintaining display or ancillary type equipment, such as the AN/GPA-30 Video Mapping Unit, AN/GPA-122 Coder-Decoder Set, or AN/GPA-127 Radar Indicator. These incumbents perform an average of 150 tasks, some of which include:

- align video mapper sweep generators
- align indicator deflection amplifiers
- align indicator range mark generators
- align indicator video mixers
- remove or replace relays
- perform soldering on circuit boards

Most of the DAFSC 303X1 personnel in this major job group work out of Keesler AFB MS, and all hold the 3- or 5-skill level. Forty percent of these incumbents are in their first enlistment, and all of the 303X1 personnel are AFCC resources. Job satisfaction data for these incumbents appear mixed, with 80 percent perceiving their job utilizes their talents at least fairly well, but only 30 percent plan to reenlist.

IV. ELECTRICAL INSTALLATION TEAM MEMBERS (GRP374). This independent job type of 13 personnel performs somewhat of a different job than the three major job groups mentioned earlier. Instead of maintaining radars or associated equipment, these incumbents are responsible for installing or disassembling radar systems. These respondents spend 51 percent of their job time performing site support or radar system installation or removal functions. Tasks which are performed by high percentages of these personnel include:

- inventory scheme materials
- install or disassemble plan position indicator systems
- install or disassemble precision approach radar systems
- install or disassemble fixed radar antenna systems
- drill and tap holes for mounting equipment
- install or remove cable junction boxes

As expected, these respondents are fairly senior, averaging 116 months TAFMS, and only 15 percent are in their first enlistment. It is interesting to note that 54 percent of these incumbents are stationed overseas, and all are assigned to AFCC. These respondents appear to be among the most satisfied of all the major job groups identified, with 70 percent finding their job interesting and 62 percent planning to reenlist.

V. JOB CONTROL PERSONNEL (GRP188). This cluster of 72 personnel has three job types and is composed of personnel from the 303X1, 303X2, and 303X3 career ladders. These incumbents spend 47 percent of their job time performing administrative and supply functions, which is more time than all other major job groups. The DAFSC 303X1 personnel in this cluster are responsible for performing the job control and related functions for ATC radars and associated equipment. Typical tasks performed by these incumbents include:

- prepare job/status document forms (AF Form 264)
- issue job control numbers
- maintain status boards, graphs, or charts
- maintain equipment status reports
- document equipment cannibalization
- prepare briefings

These incumbents perform a fairly narrow job, and only perform an average of 17 tasks. Personnel in this cluster are slightly more senior (average TAFMS of 102 months) and 89 percent are stationed in CONUS. Job satisfaction data reveals the personnel in this major job group are among the most dissatisfied, with only 51 percent finding their job interesting and only 25 percent perceiving their training is being utilized at least fairly well.

VI. RADAR MAINTENANCE SUPERVISORS (GRP208). These 177 incumbents hold DAFSC 303X1, 303X2, or 303X3 and spend 74 percent of their job time performing supervisory duties. The 303X1 personnel identified in this major job group are the supervisors and managers of the 303X1 career ladder. As expected, these respondents spend very little time performing technical radar maintenance tasks, and tend to focus on performing supervisory tasks, such as:

- interpret policies, directives, or procedures for subordinates
- prepare APRs
- counsel personnel on personal or military related matters
- determine work priorities
- plan work assignments
- maintain training records, charts, or graphs

These incumbents are the most senior of all major job groups, averaging 211 months TAFMS and with 41 percent holding DAFSC 30371 or 30399. These respondents supervise an average of five personnel, and 27 percent are assigned to AFCC. Job satisfaction data is good, with 71 percent of these respondents finding their job interesting and perceiving their training is being utilized at least fairly well.

VII. QUALITY CONTROL PERSONNEL (GRP247). Like the two clusters described above, the personnel in this major job group are performing very little if any radar maintenance and hold either the 303X1, 303X2, or 303X3 DAFSC. These incumbents spend a majority of their job time performing supervisory duties, of which inspecting and evaluating tasks comprise 49 percent of their total job time. The DAFSC 303X1 incumbents in this cluster are responsible for the quality assurance and quality control programs associated with the various ATC radar systems. Typical tasks performed by these incumbents include:

- perform equipment inspections
- prepare inspection reports
- perform personnel proficiency evaluations
- evaluate compliance with performance standards
- evaluate maintenance procedures
- perform deficiency analysis

These incumbents are also fairly senior, averaging 193 months TAFMS and having an average paygrade of E-6. In addition, job satisfaction data reveals 40 percent of these incumbents plan to retire instead of reenlist, which is the highest retirement percentage of all major job groups identified.

VIII. RESIDENT COURSE INSTRUCTORS (GRP553). This independent job type of 52 personnel is responsible for conducting resident course classroom training. As with several of the major job groups discussed earlier, this job group is composed of personnel from all three radar maintenance career ladders, with those personnel holding DAFSC T303X1 responsible for conducting various 303X1 resident classroom courses. All of the incumbents in this cluster are located in Keesler AFB MS, and spend an average of 81 percent of their job time performing training type tasks, such as:

- conduct resident course classroom training
- prepare lesson plans
- score tests
- evaluate progress of resident course students
- develop training aids
- conduct safety training

As expected, all of these incumbents are assigned to Air Training Command, and a low percentage are in their first enlistment (27 percent). These incumbents are the most satisfied overall of all major job groups, with 86 percent finding their job interesting and 92 percent perceiving their talents are being utilized at least fairly well.

Summary

The 303X1 career ladder structure appears to be fairly homogeneous in regards to the technical radar maintenance type jobs performed. Many of the tasks performed by the personnel in these technical job groups are the same, even though the types of equipment maintained may be different. The key differentiating factors for these technical jobs appear to be the type of radar or associated equipment maintained and the average number of tasks performed. In addition, it is important to note that very few of the technical jobs performed by DAFSC 303X1 personnel are performed by substantial percentages of personnel from the other radar maintenance career ladders sampled (DAFSC 303X2 or 303X3).

However, this phenomena of 303X1 exclusive jobs does not hold true with the nontechnical major job groups. Of the four major job groups in which DAFSC 303X1 personnel were found and identified as not performing ATC radar maintenance, substantial percentages of both DAFSC 303X2 and 303X3 personnel were also identified.

Job satisfaction data reveals that generally job satisfaction data varies little between the technical and nontechnical major job groups identified. However, this does not hold true for Job Control Personnel, who have the lowest job satisfaction indicators for all the 303X1 clusters and independent job types identified. Managers and supervisors need to be aware of this problem, and should try and take steps to help increase the morale of the people who are responsible for job control.

TABLE 4
RELATIVE PERCENT TIME SPENT ON DUTIES BY MAJOR JOB GROUPS

DUTIES	PRECISION APPROACH RADAR			ANCILLARY MAINT. TEAM MEMBERS			ELECTRICAL INSTALLATION PERSONNEL			JOB CONTROL PERSONNEL			RADAR MAINT. SUPERVISORS			RADAR MAINT. PERSONNEL			QUALITY CONTROL PERSONNEL			RESIDENT COURSE INSTRUCTORS		
	ATC RADAR (GRP292, N=529)	MAINT. RADAR (GRP238, N=13)	REPAIRMEN (GRP285, N=10)	GRP374, N=13)	GRP374, N=13)	GRP374, N=13)	GRP188, N=72)	GRP188, N=72)	GRP188, N=72)	GRP188, N=72)	GRP188, N=72)	GRP188, N=72)	GRP208, N=177)	GRP208, N=177)	GRP208, N=177)	GRP247, N=114)	GRP247, N=114)	GRP247, N=114)	GRP553, N=52)					
ORGANIZING AND PLANNING	2	*	2	2	2	3	11	11	11	17	11	11	3	3	3	3	3	3	3	3	3	3	3	
DIRECTING AND IMPLEMENTING	2	*	2	2	2	7	10	10	10	22	10	10	5	5	5	5	5	5	5	5	5	5	5	
INSPECTING AND EVALUATING	2	1	3	3	4	6	6	6	6	24	49	49	3	3	3	3	3	3	3	3	3	3	3	
TRAINING	1	*	2	2	3	3	3	3	3	11	11	11	4	4	4	4	4	4	4	4	4	4	4	
PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	5	5	7	4	4	4	47	16	16	19	19	19	0	0	0	0	0	0	0	0	0	0	0	
PERFORMING OPERATIONS FUNCTIONS	4	7	2	1	1	4	4	3	3	15	15	15	3	3	3	3	3	3	3	3	3	3	3	
PERFORMING SITE SUPPORT FUNCTIONS	2	3	3	3	3	12	12	12	12	15	15	15	3	3	3	3	3	3	3	3	3	3	3	
PERFORMING RADAR SYSTEM INSTALLATION AND REMOVAL FUNCTIONS	2	1	4	4	4	39	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
PERFORMING GENERAL AND PREVENTIVE MAINTENANCE	17	39	23	19	19	1	1	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	*	
MAINTAINING POWER AND DISTRIBUTION EQUIPMENT	3	6	5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
MAINTAINING TIMING SYSTEMS	4	1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
MAINTAINING TRANSMITTER SYSTEMS	10	9	1	1	1	1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
MAINTAINING ANTENNA SYSTEMS	6	2	2	2	2	2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
MAINTAINING RECEIVER SYSTEMS	15	7	3	*	*	*	*	*	*	2	2	2	*	*	*	*	*	*	*	*	*	*	*	
MAINTAINING DISPLAY EQUIPMENT	11	10	23	*	*	*	*	*	*	2	2	2	*	*	*	*	*	*	*	*	*	*	*	
MAINTAINING REMOTE EQUIPMENT	2	2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
MAINTAINING ANCILLARY EQUIPMENT	8	3	15	*	*	*	*	*	*	1	1	1	*	*	*	*	*	*	*	*	*	*	*	
MAINTAINING IDENTIFICATION FRIEND OR FOE (IFF) AND SELECTIVE IDENTIFICATION FEATURE (SIF) EQUIPMENT	5	1	3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
MAINTAINING RANGE AND ANGLE TRACKING SYSTEMS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
MAINTAINING COMPUTER SYSTEMS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	

* DENOTES LESS THAN ONE PERCENT

TABLE 5
BACKGROUND INFORMATION FOR MAJOR JOB GROUPS

	ATC RADAR MAINT. PERSONNEL	PRECISION APPROACH RADAR REPAIRMEN	ANCILLARY MAINT. PERSONNEL	ELECTRICAL INSTALLATION TEAM MEMBERS	JOB CONTROL PERSONNEL	RADAR MAINT. SUPERVISORS	QUALITY CONTROL PERSONNEL	RESIDENT COURSE INSTRUCTORS
AVERAGE NUMBER OF TASKS PERFORMED:	317	57	150	96	17	84	56	15
JOB DIFFICULTY INDEX:	19.1	8.4	14.0	11.5	5.6	12.1	11.7	9.5
AVERAGE PAYGRADE:	E-4, E-5	E-3, E-4	E-4, E-5	E-5	E-4, E-5	E-6, E-7	E-6	E-5
PERCENT LOCATED IN CONUS:	68%	92%	80%	46%	89%	85%	83%	100%
AVERAGE NUMBER OF PERSONS SUPERVISED:	1	-	1	1	1	5	-	1
DAFFC:								
30331	16%	62%	10%	-	-	-	-	8%
30351	53%	31%	40%	31%	13%	4%	3%	25%
30371	25%	-	-	54%	6%	13%	21%	10%
30399	1%	-	-	-	-	38%	11%	-
303K2	5%	7%	50%	15%	57%	22%	42%	42%
303K3	-	-	-	-	24%	33%	23%	15%
AVERAGE MONTHS TAFIS:	89	33	82	116	102	211	193	106
PERCENT OF FIRST ENLISTMENT PERSONNEL:	34%	77%	40%	15%	32%	1%	-	27%
MAJOR COMMAND:								
AFCC	88%	85%	50%	100%	26%	27%	27%	-
ATC	-	-	-	-	-	3%	-	100%
TAC	6%	15%	40%	-	60%	38%	43%	-
SAC	2%	-	-	-	7%	24%	13%	-
OTHER	4%	-	-	10%	-	8%	17%	-

TABLE 6
JOB SATISFACTION DATA FOR MAJOR JOB GROUPS
(PERCENT MEMBERS RESPONDING)

	PRECISION ATC RADAR MAINT. PERSONNEL	RADAR APPROACH REPAIRMEN	ANCILLARY MAINT. PERSONNEL	ELECTRICAL INSTALLATION TEAM MEMBERS	JOB CONTROL PERSONNEL	RADAR MAINT. SUPERVISORS	QUALITY CONTROL PERSONNEL	RESIDENT COURSE INSTRUCTORS
<u>I FIND MY JOB:</u>								
NO RESPONSE	2	-	-	-	-	1	1	-
DULL	7	15	20	15	25	16	18	8
SO-SO	13	15	20	15	24	12	20	6
INTERESTING	78	70	60	70	51	71	61	86
<u>MY JOB UTILIZES MY TALENTS:</u>								
NO RESPONSE	1	-	-	-	-	1	-	-
NOT AT ALL TO VERY LITTLE	14	31	20	23	53	25	25	8
FAIRLY WELL OR BETTER	85	69	80	77	47	74	75	92
<u>MY JOB UTILIZES MY TRAINING:</u>								
NO RESPONSE	1	-	-	-	-	1	2	2
NOT AT ALL TO VERY LITTLE	13	31	30	39	75	28	26	6
FAIRLY WELL OR BETTER	86	69	70	61	25	71	72	92
<u>I PLAN TO REENLIST:</u>								
NO RESPONSE	3	8	-	-	-	3	1	2
NO, PLANNING TO RETIRE	6	-	10	8	13	36	40	10
NO OR PROBABLY NO	43	39	60	30	42	14	13	34
YES OR PROBABLY YES	48	53	30	62	45	47	46	54

ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups forms a part of each occupational analysis. The DAFSC analysis helps to identify differences among skill level groups within the 303X1 specialty. It also aids in the analysis of career ladder documents, such as AFR 39-1 Specialty Descriptions and the Specialty Training Standard (STS).

The DAFSC analysis of the 303X1 specialty will discuss the duties and tasks common to the DAFSC groups, as well as discussing the tasks which best differentiate the 3-, 5-, 7-, and 9-skill level incumbents.

Skill Level Comparisons

As in most career ladders, the job performed by 3-skill level respondents is largely technical in nature. These incumbents spend approximately 80 percent of their job time on technical radar maintenance duties, with three duties (performing general and preventive maintenance, maintaining receiver systems, and maintaining display equipment) accounting for 45 percent of their total job time (see Table 7). This is realistic with the career ladder structure, since most 3-skill level personnel fall into the ATC Radar Maintenance Personnel cluster (who were identified as performing primarily an ATC radar maintenance type job). Table 9 lists those tasks performed by the highest percentages of 3-skill level respondents. These tasks are primarily maintenance oriented, and include removing or replacing relays, performing PMIs on receiver equipment, aligning automatic frequency control (AFC) circuits, and performing moving target indicator system checks.

At the 5-skill level, Table 7 reveals the percentage of time spent on duties changes somewhat, with slightly more time spent on supervisory and administrative duties and slightly less time spent performing most of the maintenance related duties. A review of the DAFSC distribution across major job groups reveals the bulk of 5-skill level personnel can be found in the job groups performing a maintenance oriented job, such as ATC Radar Maintenance Personnel (see Table 8). The maintenance oriented job performed by 5-skill level personnel is again reflected in the most common tasks they perform, with removing or replacing capacitors, adjusting voltage regulators, adjusting video amplifiers, and tuning magnetron transmitters being performed by high percentages of 5-skill level personnel (see Table 10).

In a comparison of the tasks performed by 3- and 5-skill level personnel, Table 11 provides representative tasks which are performed by similar percentages of both 3- and 5-skill level personnel, and those tasks which best differentiate the two groups. As Table 11 indicates, there are very few tasks which are performed by a substantially higher percentage of 3-skill level personnel. Many routine radar maintenance tasks, however, are performed by similar percentages of 3- and 5-skill level personnel, some of which include removing or replacing capacitors, or removing or replacing composite video generators. Finally, most of the tasks which are performed by substantially higher percentages of 5-skill level personnel are supervisory in nature, and include preparing APRs, determining work priorities, or supervising ATC Radar Specialists (AFSC 30351). Along the same lines,

5-skill level personnel are more likely to be found performing jobs involving supervisory duties than 3-skill level personnel (see Table 8).

Seven-skill level personnel take on a more supervisory role, with these incumbents spending approximately one-third of their job time on supervisory duties. In addition, these incumbents spend somewhat less time (six percent) on general and preventive maintenance type tasks. An examination of representative tasks performed by DAFSC 30371 personnel (see Table 12) reveals these incumbents typically perform such tasks as preparing APRs, determining work priorities, aligning automatic frequency control (AFC) circuits, and aligning parametric amplifiers. In addition, Table 8 reveals that 7-skill level personnel perform a wide variety of jobs, with a high number of these personnel found in both radar maintenance or supervisory oriented jobs.

Table 13 lists both the tasks which best differentiate 5- and 7-skill level personnel and the tasks which are performed by similar percentages of these two groups of incumbents. Radar maintenance tasks, particularly those involving display equipment, such as aligning indicator sweep generators or precision map generators, are performed by somewhat higher percentages of 5-skill level personnel. IFF/SIF radar maintenance type tasks, such as isolating IFF/SIF transmitter or RABM malfunctions, are performed by similar percentages of DAFSC 30351 and 30371 personnel. Finally, supervisory tasks, such as counseling personnel on personal or military related matters or preparing replies to inspection reports, are performed by substantially higher percentages of 7-skill level personnel.

Nine-skill level personnel are primarily supervisors or managers, with Table 7 revealing these respondents spend approximately 80 percent of their job time performing supervisory duties. Table 8 reveals these personnel perform primarily supervisory jobs, with the majority of these incumbents falling into job types in the Radar Maintenance Supervisors cluster. Table 14 lists the representative tasks performed by DAFSC 30399 personnel, with tasks, such as interpreting policies for subordinates, scheduling temporary duty, or participating in staff meetings being typical for these incumbents.

Finally, Table 15 lists those tasks which best differentiate and which are performed by similar percentages of DAFSC 30371 or 30399 personnel. Technical radar maintenance tasks make up a majority of the tasks performed by substantially higher percentages of 7-skill level personnel. Typical differentiating tasks for 7-skill level incumbents include performing PMIs on timing equipment, aligning automatic frequency control (AFC) circuits, or performing PMIs on IFF/SIF equipment. Tasks performed by similar percentages of 7- and 9-skill level incumbents are supervisory in nature, and include preparing APRs or determining work priorities. Finally, the tasks which are performed by substantially higher percentages of 9-skill level respondents are also supervisory related, and include writing staff studies, preparing briefings, or preparing agenda for staff meetings.

Summary

An examination of the duties and tasks performed by various 303X1 skill level groups reveals a wide variety of jobs are performed by the personnel in this career ladder. Three-skill level personnel are primarily technicians, with these respondents spending virtually all of their job time performing radar maintenance duties. DAFSC 30351 personnel also spend a majority of their job time on radar maintenance duties, but supervisory and administrative type tasks take up approximately 20 percent of their job time. Seven-skill level personnel roughly divide their time between radar maintenance and supervisory or administrative type duties. Finally, DAFSC 30399 personnel are the supervisors or managers of the career ladder, with these incumbents spending approximately 85 percent of their job time performing supervisory duties.

TABLE 7
RELATIVE TIME SPENT ON DUTIES BY 303X1 DAFSC GROUPS

DUTIES	DAFSC 30331 PERSONNEL (N=128)	DAFSC 30351 PERSONNEL (N=395)	DAFSC 30371 PERSONNEL (N=228)	DAFSC 30399 PERSONNEL (N=88)
ORGANIZING AND PLANNING	*	2	7	20
DIRECTING AND IMPLEMENTING	*	2	7	23
INSPECTING AND EVALUATING	*	2	13	34
TRAINING	3	5	6	5
PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	6	8	11	11
PERFORMING OPERATIONS FUNCTIONS	6	4	3	*
PERFORMING SITE SUPPORT FUNCTIONS	3	3	3	2
PERFORMING RADAR SYSTEM INSTALLATION AND REMOVAL FUNCTIONS	3	3	3	*
PERFORMING GENERAL AND PREVENTIVE MAINTENANCE	21	16	10	*
MAINTAINING POWER AND DISTRIBUTION EQUIPMENT	3	3	2	*
MAINTAINING TIMING SYSTEMS	3	3	2	*
MAINTAINING TRANSMITTER SYSTEMS	9	8	5	*
MAINTAINING ANTENNA SYSTEMS	5	5	4	*
MAINTAINING RECEIVER SYSTEMS	13	12	8	*
MAINTAINING DISPLAY EQUIPMENT	11	10	6	*
MAINTAINING REMOTE EQUIPMENT	3	2	1	*
MAINTAINING ANCILLARY EQUIPMENT	6	7	5	*
MAINTAINING IDENTIFICATION FRIEND OR FOE (IFF) AND SELECTIVE IDENTIFICATION FEATURE (SIF) EQUIPMENT	3	*	4	*
MAINTAINING RANGE AND ANGLE TRACKING SYSTEMS	*	*	*	*
MAINTAINING COMPUTER SYSTEMS	*	*	*	*

* DENOTES LESS THAN ONE PERCENT

TABLE 8
DAFSC DISTRIBUTION FOR MAJOR JOB GROUPS

MAJOR JOB GROUPS	DAFSC					
	30331	30351	30371	30399	303X2	303X3
ATC RADAR MAINTENANCE PERSONNEL	85	281	132	5	26	
PRECISION APPROACH RADAR REPAIRMEN	8	4			1	
ANCILLARY MAINTENANCE PERSONNEL	1	4			5	
ELECTRICAL INSTALLATION TEAM MEMBERS		4	7		2	
JOB CONTROL PERSONNEL		9	4		41	18
RADAR MAINTENANCE SUPERVISORS		7	23	50	39	58
QUALITY CONTROL PERSONNEL		4	24	13	48	25
RESIDENT COURSE INSTRUCTORS	4	13	5		22	8
NOT GROUPED	30	69	33	20	165	190
TOTAL	128	395	228	88	724*	661*

*THE TOTALS FOR THE 303X2 AND 303X3 COLUMNS DO NOT ADD UP TO 100 PERCENT OF THEIR TOTAL SAMPLE DUE TO THE FACT THAT THE 303X2 AND 303X3 EXCLUSIVE JOB GROUPS ARE NOT LISTED HERE

TABLE 9
REPRESENTATIVE TASKS PERFORMED BY DAFSC 30331 PERSONNEL

<u>TASKS</u>	<u>PERCENT OF 3-SKILL LEVEL MEMBERS PERFORMING (N=128)</u>
REMOVE OR REPLACE FUSES OR FUSE HOLDERS	86
REMOVE OR REPLACE RELAYS	79
PERFORM PMIs ON RECEIVER EQUIPMENT	79
REMOVE OR REPLACE RESISTORS	78
PERFORM SOLDERING ON WIRING TERMINALS OR CONNECTOR PLUGS	78
ADJUST POWER SUPPLIES OTHER THAN TRANSMITTER HIGH VOLTAGE POWER SUPPLIES	78
PERFORM PMIs ON TRANSMITTER EQUIPMENT	77
REMOVE OR REPLACE ELECTRON TUBES	76
ALIGN AUTOMATIC FREQUENCY CONTROL (AFC) CIRCUITS	75
REMOVE OR REPLACE CAPACITORS	74
PERFORM PMIs ON ANTENNA EQUIPMENT	73
PERFORM PMIs ON DISPLAY EQUIPMENT	72
REMOVE OR REPLACE SEMICONDUCTOR DEVICES	72
ADJUST TRANSMITTER HIGH VOLTAGE POWER SUPPLIES	72
REMOVE OR REPLACE SWITCHES	72
REMOVE OR REPLACE CATHODE-RAY TUBES	71
PERFORM POWER SUPPLY OPERATIONAL CHECKS	70
PERFORM SOLDERING ON CIRCUIT BOARDS	70
REMOVE OR REPLACE CRYSTALS	70
PERFORM GENERAL HOUSEKEEPING PROCEDURES	68
PERFORM PMIs ON REMOTING EQUIPMENT	66
ALIGN TRANSMITTER STALOS	63
DRIVE SMALL GOVERNMENT VEHICLES, SUCH AS PICKUPS OR PASSENGER VEHICLES	63
ALIGN PRECISION MAP GENERATORS	62
PERFORM MOVING TARGET INDICATOR SYSTEM CHECKS	62

TABLE 10
REPRESENTATIVE TASKS PERFORMED BY DAFSC 30351 PERSONNEL

<u>TASKS</u>	PERCENT OF 5-SKILL LEVEL MEMBERS PERFORMING (N=395)
REMOVE OR REPLACE FUSES OR FUSE HOLDERS	79
REMOVE OR REPLACE RESISTORS	76
PERFORM SOLDERING ON CIRCUIT BOARDS	74
PERFORM PMIs ON TRANSMITTER EQUIPMENT	73
REMOVE OR REPLACE CAPACITORS	73
REMOVE OR REPLACE CATHODE-RAY TUBES	73
REMOVE OR REPLACE ELECTRON TUBES	73
PERFORM PMIs ON RECEIVER EQUIPMENT	72
PERFORM PMIs ON ANTENNA EQUIPMENT	72
REMOVE OR REPLACE SEMICONDUCTOR DEVICES	71
PERFORM SOLDERING ON WIRING TERMINALS OR CONNECTOR PLUGS	71
REMOVE OR REPLACE RELAYS	71
PERFORM GENERAL HOUSEKEEPING PROCEDURES	71
ADJUST POWER SUPPLIES OTHER THAN TRANSMITTER HIGH VOLTAGE POWER SUPPLIES	71
ALIGN AUTOMATIC FREQUENCY CONTROL (AFC) CIRCUITS	70
REMOVE OR REPLACE SWITCHES	70
ADJUST VOLTAGE REGULATORS	69
ADJUST TRANSMITTER HIGH VOLTAGE POWER SUPPLIES	68
PERFORM PMIs ON DISPLAY EQUIPMENT	68
REMOVE OR REPLACE TRANSFORMERS	68
ALIGN INDICATOR SWEEP GENERATORS	67
REMOVE OR REPLACE CRYSTALS	66
ADJUST VIDEO AMPLIFIERS	65
PERFORM PMIs ON IFF/SIF EQUIPMENT	64
TUNE MAGNETRON TRANSMITTERS	63

TABLE 11
TASKS WHICH BEST DIFFERENTIATE AFSC 30331 AND 30351 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING			DIFFERENCE
	30331 PERSONNEL (N=128)	30351 PERSONNEL (N=395)	30351	
PERFORM INDICATOR SWEEP CHECKS	53	41		+12
PERFORM AUTOMATIC GAIN CONTROL CHECKS	43	31		+12
PERFORM PM's ON REMOTING EQUIPMENT	66	55		+11
PERFORM POWER SUPPLY OPERATIONAL CHECKS	70	59		+11
PERFORM SYSTEM SELF TESTS	23	13		+10
PERFORM MOVING TARGET INDICATOR SYSTEM CHECKS	62	53		+9
PERFORM AUTOMATIC FREQUENCY CONTROL CHECKS	52	43		+9
ADJUST AZIMUTH BLANERS	45	36		+9
REMOVE OR REPLACE CAPACITORS	74	74		*
REMOVE OR REPLACE POWER SUPPLIES OTHER THAN TRANSMITTER HIGH VOLTAGE POWER SUPPLIES	63	63		*
REMOVE OR REPLACE COMPOSITE VIDEO GENERATORS	58	58		*
ISOLATE AFC CIRCUIT MALFUNCTIONS	57	57		*
REMOVE OR REPLACE INDICATOR SWEEP GENERATORS	55	55		*
TUNE MAGNETRON TRANSMITTERS	62	62		*
ORIENT MTI REFLECTORS	25	44		-19
COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED MATTERS	4	24		-20
MAINTAIN TECHNICAL ORDER FILES	15	35		-20
SUPERVISE APPRENTICE AIR TRAFFIC CONTROL RADAR SPECIALISTS (AFSC 30331)	8	30		-22
PREPARE APRS	3	26		-23
SUPERVISE AIR TRAFFIC CONTROL RADAR SPECIALISTS (AFSC 30351)	2	26		-24
DETERMINE WORK PRIORITIES	20	48		-28
CONDUCT OJT	9	42		-33

* DENOTES LESS THAN ONE PERCENT

TABLE 12
REPRESENTATIVE TASKS PERFORMED BY DAFSC 30371 PERSONNEL

TASKS	PERCENT OF 7-SKILL LEVEL MEMBERS PERFORMING (N=228)
PARTICIPATE IN MEETINGS, SUCH AS STAFF MEETINGS, BRIEFINGS, CONFERENCES, OR WORKSHOPS	73
PREPARE APRs	71
DETERMINE WORK PRIORITIES	70
PERFORM EQUIPMENT INSPECTIONS	64
CONDUCT OJT	63
SUPERVISE AIR TRAFFIC CONTROL RADAR SPECIALISTS (AFSC 30351)	60
ORIENT NEWLY ASSIGNED PERSONNEL	60
REMOVE OR REPLACE RESISTORS	60
ALIGN AUTOMATIC FREQUENCY CONTROL (AFC) CIRCUITS	60
DRIVE SMALL GOVERNMENT VEHICLES, SUCH AS PICKUPS OR PASSENGER VEHICLES	60
COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED MATTERS	59
INVENTORY SUPPLIES, EQUIPMENT, OR TOOLS	59
PREPARE SERVICEABLE TAG - MATERIEL FORMS (DD FORM 1574)	59
MAINTAIN TRAINING RECORDS, CHARTS, OR GRAPHS	58
COUNSEL TRAINEES ON TRAINING PROGRESS	58
INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	57
CERTIFY STATUS OF REPARABLE, SERVICEABLE, OR CONDEMNED PARTS	57
PLAN WORK ASSIGNMENTS	53
ALIGN PARAMETRIC AMPLIFIERS	53
REMOVE OR REPLACE TRANSFORMERS	53
ESTABLISH WORK SCHEDULES	51
EVALUATE COMPLIANCE WITH PERFORMANCE STANDARDS	50
MAINTAIN ADMINISTRATIVE OR RECORDS FILES	49

TABLE 13
TASKS WHICH BEST DIFFERENTIATE DAFSC 30351 AND 30371 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING		
	30351 PERSONNEL (N=395)	30371 PERSONNEL (N=228)	DIFFERENCE
ADJUST TRANSMITTER STABLE LOCAL OSCILLATORS (STALO)	59	38	+21
ALIGN INDICATOR SWEEP GENERATORS	67	47	+20
ALIGN PRECISION MAP GENERATORS	65	45	+20
ALIGN RANGE MARK GENERATORS	60	41	+19
REMOVE OR REPLACE FUSES OR FUSE HOLDERS	78	59	+19
ALIGN TRANSMITTER STALOS	58	39	+19
ALIGN REMOTE LINE DRIVERS	45	27	+18
PERFORM PMIs ON DISPLAY EQUIPMENT	68	50	+18
PERFORM OPERATIONAL CHECKS OF IFF/SIF RADAR SYSTEMS	49	49	*
ALIGN IFF/SIF CODER SYNCHRONIZERS	43	43	*
ISOLATE RECEIVER COHERENT OSCILLATOR MALFUNCTIONS	43	43	*
PERFORM PMIs ON ANCILLARY EQUIPMENT	40	40	*
REMOVE OR REPLACE CRYSTAL RECTIFIERS	43	43	*
ISOLATE IFF/SIF TRANSMITTER MALFUNCTIONS	48	48	*
ISOLATE IFF/SIF RAM MALFUNCTIONS	46	46	*
SUPERVISE AIR TRAFFIC CONTROL RADAR SPECIALISTS (AFSC 30351) COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED MATTERS	26	60	-34
SUPERVISE AIR TRAFFIC CONTROL RADAR TECHNICIANS (AFSC 30371) INDORSE AIRMAN PERFORMANCE REPORTS (APR)	24	60	-36
PREPARE REPLIES TO INSPECTION REPORTS	4	40	-36
WRITE CORRESPONDENCE	8	44	-36
EVALUATE INSPECTION REPORTS OR PROCEDURES	8	48	-40
PREPARE APRs	12	52	-40
	5	46	-41
	26	71	-45

* DENOTES LESS THAN ONE PERCENT

TABLE 14
REPRESENTATIVE TASKS PERFORMED BY DAFSC 30399 PERSONNEL

<u>TASKS</u>	<u>PERCENT OF 9-SKILL LEVEL MEMBERS PERFORMING (N=88)</u>
PARTICIPATE IN MEETINGS, SUCH AS STAFF MEETINGS, BRIEFINGS, CONFERENCES, OR WORKSHOPS	94
WRITE CORRESPONDENCE	84
REVIEW CORRESPONDENCE OR REPORTS	83
COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED MATTERS	76
INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	75
PREPARE REPLIES TO INSPECTION REPORTS	73
ESTABLISH ORGANIZATIONAL POLICIES, OFFICE INSTRUCTIONS (OI), OR STANDARD OPERATING PROCEDURES (SOP)	72
ORIENT NEWLY ASSIGNED PERSONNEL	72
PREPARE RECOMMENDATIONS FOR AWARDS OR DECORATIONS	70
PREPARE APRs	69
DETERMINE WORK PRIORITIES	69
EVALUATE INSPECTION REPORTS OR PROCEDURES	68
DETERMINE REQUIREMENTS FOR SPACE, PERSONNEL, EQUIPMENT, OR SUPPLIES	68
SCHEDULE TEMPORARY DUTY, LEAVES, OR PASSES	67
EVALUATE INDIVIDUALS FOR RECOGNITION	66
INDORSE AIRMAN PERFORMANCE REPORTS (APR)	65
PREPARE BRIEFINGS	65
ASSIGN PERSONNEL TO DUTY POSITIONS	63
ANALYZE TRENDS IN SYSTEM MALFUNCTIONS	60
CONDUCT BRIEFINGS OTHER THAN CREW BRIEFINGS	59
DETERMINE TRANSPORTATION REQUIREMENTS	58
DRAFT LOCAL POLICY OR HIGHER HEADQUARTERS DIRECTIVES	58
EVALUATE MAINTENANCE PROCEDURES	56
IMPLEMENT SELF INSPECTION PROCEDURES	56

TABLE 15
TASKS WHICH BEST DIFFERENTIATE DAFSC 30371 AND 30399 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING		
	30371 PERSONNEL (N=228)	30399 PERSONNEL (N=88)	DIFFERENCE
ALIGN AUTOMATIC FREQUENCY CONTROL (AFC) CIRCUITS	60	3	+57
REMOVE OR REPLACE RESISTORS	61	5	+56
REMOVE OR REPLACE CATHODE-RAY TUBES	58	3	+55
PERFORM PMIs ON TRANSMITTER EQUIPMENT	57	2	+55
SUPERVISE AIR TRAFFIC CONTROL RADAR SPECIALISTS (AFSC 30351)	60	7	+53
ADJUST POWER SUPPLIES OTHER THAN TRANSMITTER HIGH VOLTAGE POWER SUPPLIES	59	6	+53
PERFORM PMIs ON TIMING EQUIPMENT	54	2	+52
PERFORM PMIs ON IFF/SIF EQUIPMENT	53	2	+51
DEVELOP EQUIPMENT OPERATIONS OR MAINTENANCE SCHEDULES	44	42	+ 2
PREPARE APRs	71	69	+ 2
EVALUATE COMPLIANCE WITH PERFORMANCE STANDARDS	50	49	+ 1
DETERMINE WORK PRIORITIES	70	69	+ 1
DIRECT MAINTENANCE OR UTILIZATION OF EQUIPMENT	42	42	*
EVALUATE PERFORMANCE OF NEWLY INSTALLED EQUIPMENT	36	37	- 1
DEVELOP WORK METHODS OR PROCEDURES	41	37	- 3
WRITE STAFF STUDIES, SURVEYS, OR SPECIAL REPORTS	21	53	-32
CONDUCT BRIEFINGS OTHER THAN CREW BRIEFINGS	23	59	-36
PREPARE AGENDA FOR STAFF MEETINGS	8	44	-36
SUPERVISE AIRCRAFT CONTROL AND WARNING RADAR TECHNICIANS (AFSC 30372)	*	37	-37
PREPARE BRIEFINGS	25	65	-40
ESTABLISH ORGANIZATIONAL POLICIES, OFFICE INSTRUCTIONS (OI), OR STANDARD OPERATING PROCEDURES (SOP)	30	72	-42
SUPERVISE MILITARY PERSONNEL WITH AFSs OTHER THAN 303X1, 303X2, OR 303X3	10	53	-43

* DENOTES LESS THAN ONE PERCENT

COMPARISON OF SURVEY DATA TO AFR 39-1 SPECIALTY DESCRIPTIONS

Survey data for the 303X1 career ladder were compared to the AFR 39-1 Specialty Descriptions, dated 30 April 1979 (for DAFSCs 30311, 30331, 30351, 30371, and 30399). These descriptions are intended to provide a broad overview of the duties and tasks required to be performed by the various skill level personnel. Overall, the 3-, 5-, 7-, and 9-skill level descriptions were found to provide a clear, concise overview of the major duties and tasks performed by DAFSC 303X1 and 30399 incumbents.

ANALYSIS OF EXPERIENCE (TAFMS) GROUPS

In addition to the skill level analysis, survey respondents were also examined on the basis of months of Total Active Federal Military Service (TAFMS). This analysis helps to determine how jobs and job perceptions change over time, and can help describe the types of jobs more junior 303X1 personnel can look forward to performing in the future.

As expected, no major deviations from the usual pattern of increasing time spent on supervisory duties with increasing months TAFMS were noted (see Table 16). Generally, more junior airmen spend more time performing technical radar maintenance functions, such as performing preventive maintenance, maintaining display equipment, and maintaining receiver systems, while senior incumbents spend more time on directing and implementing, administrative, and inspecting and evaluating type duties.

Job Satisfaction Analysis

Job satisfaction indices for personnel in the first enlistment (1-48 months TAFMS), second enlistment (49-96 months TAFMS), and career (97+ months TAFMS) groups were also examined. Job interest, perceived utilization of talents and training, and reenlistment intentions are presented in Table 17, along with the comparative data for similar personnel from all related career fields analyzed in 1979. (These comparative sample career ladders included the 304XX, 306XX, 316XX, 321XX, 328XX, 423XX, 427XX, and 461XX career fields.) When compared to the comparative sample, 303X1 first enlistment personnel have substantially higher job satisfaction indicators, with approximately 20 percent more finding their job interesting and about 15 percent more perceiving their talents and training are being utilized at least fairly well. Reenlistment intentions for 303X1 first enlistment and comparative sample personnel appear to be about the same. DAFSC 303X1 second enlistment personnel show the same job satisfaction trends as 303X1 first enlistment personnel, but to a somewhat lesser extent. Finally, about the same percentages of career 303X1 and comparative sample personnel find their job interesting and perceive their job utilizes their talents and training at least fairly well. However, a somewhat lower percentage of 303X1 career personnel plan to reenlist than the career comparative sample personnel.

First Enlistment Personnel

First enlistment personnel were also examined on the basis of both common tasks performed and various types of background information. Table 18 lists those tasks performed by the greatest percentages of 303X1 first enlistment (1-48 months TAFMS) incumbents. Generally, these most common tasks involve some aspect of general or preventive maintenance, such as removing or replacing resistors, performing PMIs on transmitter equipment, performing soldering on circuit boards, or performing power supply operational checks.

Although the tasks listed in Table 18 are characteristic of most first enlistment personnel, other functions performed by these incumbents vary somewhat depending on the job they perform. Figure 2 presents the distribution of 303X1 first enlistment airmen across job groups identified in the CAREER LADDER STRUCTURE section. As expected, most first enlistment personnel can be identified in job types found in the ATC Radar Maintenance Personnel cluster. Tasks which are typically performed by first enlistment personnel in the major job groups in Figure 2 include:

ATC Radar Maintenance Personnel

- align precision map generators
- perform moving target indicator system checks
- perform PMIs on transmitter equipment
- perform PMIs on antenna equipment

Precision Approach Radar Repairmen

- perform soldering on circuit boards
- adjust video amplifiers
- perform PMIs on receiver equipment
- remove or replace relays

Resident Course Instructors

- prepare lesson plans
- write test questions
- conduct resident course classroom training
- develop training aids

In addition to an analysis of tasks performed, the various pieces of radar equipment maintained and test equipment utilized by first enlistment personnel were examined. Table 19 reveals that the AN/GPA-133, AN/GPA-131, AN/FPN-16/61, and the AN/TPX-49 are among the most common types of radar or radar equipment maintained by first enlistment personnel. Table 19 also reveals that meg-ohm meters, dial indicators, high voltage probes, and flux meters are among the most common types of test equipment utilized by first enlistment personnel.

TABLE 16
RELATIVE PERCENT TIME SPENT ON DUTIES BY 303X1 TAFMS GROUPS

DUTIES	MONTHS TAFMS					
	1-48 (N=253)	49-96 (N=218)	97-144 (N=106)	145-192 (N=79)	193-240 (N=61)	241+ (N=33)
ORGANIZING AND PLANNING	1	2	5	7	7	9
DIRECTING AND IMPLEMENTING	*	2	5	6	9	10
INSPECTING AND EVALUATING	*	2	6	12	17	22
TRAINING	4	4	7	8	4	6
PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	7	7	9	13	14	15
PERFORMING OPERATIONS FUNCTIONS	5	4	3	3	3	1
PERFORMING SITE SUPPORT FUNCTIONS	3	3	3	2	2	2
PERFORMING RADAR SYSTEM INSTALLATION AND REMOVAL FUNCTIONS	4	3	4	2	2	2
PERFORMING GENERAL AND PREVENTIVE MAINTENANCE	19	16	13	9	9	6
MAINTAINING POWER AND DISTRIBUTION EQUIPMENT	3	3	2	2	1	1
MAINTAINING TIMING SYSTEMS	3	3	3	2	2	*
MAINTAINING TRANSMITTER SYSTEMS	9	8	7	6	4	3
MAINTAINING ANTENNA SYSTEMS	4	5	5	4	3	3
MAINTAINING RECEIVER SYSTEMS	12	13	10	8	7	7
MAINTAINING DISPLAY EQUIPMENT	10	10	8	5	6	5
MAINTAINING REMOTE EQUIPMENT	2	2	2	1	*	4
MAINTAINING ANCILLARY EQUIPMENT	8	7	6	5	6	4
MAINTAINING IDENTIFICATION FRIEND OR FOE (IFF) AND SELECTIVE IDENTIFICATION FEATURE (SIF) EQUIPMENT	4	5	4	4	4	2
MAINTAINING RANGE AND ANGLE TRACKING SYSTEMS	*	*	*	*	*	*
MAINTAINING COMPUTER SYSTEMS	*	*	*	*	*	*

* DENOTES LESS THAN ONE PERCENT

TABLE 17

JOB SATISFACTION AND RELATED DATA FOR 303X1 FIRST ENLISTMENT (1-48 MONTHS TAFMS), SECOND ENLISTMENT (49-96 MONTHS TAFMS), CAREER (97+ MONTHS TAFMS), AND COMPARATIVE SAMPLE PERSONNEL (PERCENT MEMBERS RESPONDING)

	MONTHS TAFMS			
	1-48		49-96	
	303X1 (N=253)	1979 COMP SAMPLE* (N=6,124)	303X1 (N=218)	1979 COMP SAMPLE* (N=2,787)
<u>I FIND MY JOB:</u>				
NO RESPONSE	1	2	2	2
DULL	9	19	9	19
SO-SO	13	23	12	22
INTERESTING	77	56	77	57
<u>MY JOB UTILIZES MY TALENTS:</u>				
NO RESPONSE	1	1	1	1
NOT AT ALL TO VERY LITTLE	18	34	21	31
FAIRLY WELL OR BETTER	81	65	78	68
<u>MY JOB UTILIZES MY TRAINING:</u>				
NO RESPONSE	2	1	1	1
NOT AT ALL TO VERY LITTLE	17	40	22	33
FAIRLY WELL OR BETTER	81	59	77	66
<u>I PLAN TO REENLIST:</u>				
NO RESPONSE	-	2	-	2
WILL RETIRE	-	-	-	-
NO OR PROBABLY NO	64	64	52	47
YES OR PROBABLY YES	36	34	48	51
				2
				20
				19
				29
				69
				61

* (INCLUDES PERSONNEL IN AFSCs 304XX, 306XX, 316XX, 321XX, 328XX, 423XX, 427XX, AND 461XX)

FIGURE 2

JOB GROUP DISTRIBUTION FOR FIRST ENLISTMENT 303X1 AIRMEN
(N=253)

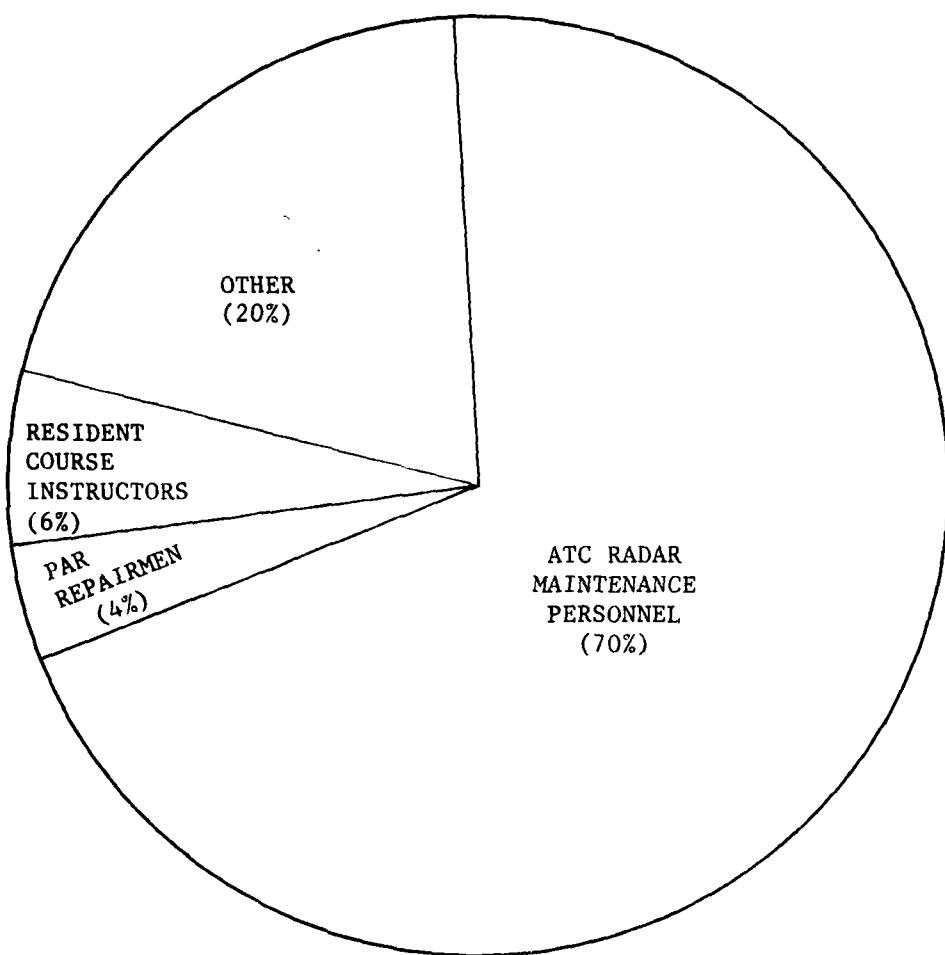


TABLE 18

REPRESENTATIVE TASKS PERFORMED BY 303X1
 FIRST ENLISTMENT (1-48 MONTHS TAFMS) PERSONNEL
 (PERCENT MEMBERS PERFORMING)

TASKS	FIRST ENLISTMENT PERSONNEL (N=253)
REMOVE OR REPLACE FUSES OR FUSE HOLDERS	84
REMOVE OR REPLACE RESISTORS	79
PERFORM PMIs ON RECEIVER EQUIPMENT	77
REMOVE OR REPLACE CAPACITORS	77
PERFORM SOLDERING ON WIRING TERMINALS OR CONNECTOR PLUGS	76
REMOVE OR REPLACE ELECTRON TUBES	76
PERFORM PMIs ON TRANSMITTER EQUIPMENT	76
ADJUST POWER SUPPLIES OTHER THAN TRANSMITTER HIGH VOLTAGE POWER SUPPLIES	75
REMOVE OR REPLACE RELAYS	75
PERFORM PMIs ON ANTENNA EQUIPMENT	73
PERFORM SOLDERING ON CIRCUIT BOARDS	73
ALIGN AUTOMATIC FREQUENCY CONTROL (AFC) CIRCUITS	73
REMOVE OR REPLACE SWITCHES	73
REMOVE OR REPLACE CATHODE-RAY TUBES	73
PERFORM PMIs ON DISPLAY EQUIPMENT	72
REMOVE OR REPLACE SEMICONDUCTOR DEVICES	72
PERFORM GENERAL HOUSEKEEPING PROCEDURES	70
REMOVE OR REPLACE CRYSTALS	70
ADJUST VOLTAGE REGULATORS	68
DRIVE SMALL GOVERNMENT VEHICLES, SUCH AS PICKUPS OR PASSENGER VEHICLES	64
PERFORM POWER SUPPLY OPERATIONAL CHECKS	64
PERFORM PMIs ON REMOTING EQUIPMENT	62
ALIGN PRECISION MAP GENERATORS	62
ADJUST TRANSMITTER STABLE LOCAL OSCILLATORS (STALO)	60
PREPARE MAINTENANCE DATA COLLECTION RECORD FORMS (AFTO FORM 349)	57

TABLE 19

TYPES OF RADAR EQUIPMENT MAINTAINED AND
TEST EQUIPMENT UTILIZED BY FIRST ENLISTMENT PERSONNEL

<u>RADAR EQUIPMENT</u>	<u>PERCENT MEMBERS MAINTAINING (N=253)</u>
AN/GPA-133 RADAR BRIGHT DISPLAY EQUIPMENT	75
AN/GPA-131 VIDEO MAPPING UNIT	70
AN/FPN-16/61 PRECISION APPROACH RADAR	55
AN/TPX-49 RANGE AZIMUTH BEACON MONITOR	53
AN/TPX-42A INTERROGATOR SET	45
AN/TPX-42 INTERROGATOR SET	42
OS-24/126 SYNCHROSCOPE	41
AN/FPN-47 AIRPORT SURVEILLANCE RADAR	38
AN/ARC-27 UHF TRANSCEIVER	36
AN/ARC-3 UHF TRANSCEIVER	36
15G/4B SUITCASE/RADAR SIMULATOR	35
POWERED OR MANUAL TURNTABLE	30

<u>TEST EQUIPMENT</u>	<u>PERCENT MEMBERS UTILIZING (N=253)</u>
MEG-OHM METERS	77
DIAL INDICATORS	77
HIGH VOLTAGE PROBES	69
STANDING WAVE RATIO METERS	57
FLUX METERS	56
NOISE FIGURE METERS	52
PACE KITS	51
TRANSISTOR TESTERS	50
INSULATION BREAKDOWN TESTERS	41
COUPLERS	35
PRINTED CIRCUIT CARD TEST SETS	28
SYNCHRO STANDARDS	26

ANALYSIS OF CONUS VERSUS OVERSEAS GROUPS

A comparison was made between the tasks performed and the background data for DAFSC 30351 personnel who were assigned within the CONUS versus those who were assigned overseas. Overall, the jobs performed by the two groups are fairly similar with respect to the tasks performed and the time spent on those tasks. However, the job of the overseas respondents seems to be slightly different, with these incumbents being somewhat more involved with various maintenance aspects of search radars.

A number of task differences and similarities were noted between CONUS and overseas incumbents (see Table 20). Tasks involving multiplexers or demultiplexers, such as aligning multiplexers or isolating demultiplexer malfunctions, are performed by slightly higher percentages of CONUS respondents. A variety of radar maintenance tasks were found being performed by similar percentages of CONUS and overseas respondents, some of which include aligning stagger PRF malfunctions, aligning television cameras, or isolating digital to analog converter malfunctions. Finally, there were a number of tasks involving search radars or antenna tilt arms which are performed by substantially higher percentages of overseas incumbents. Examples of these tasks include replacing search radar receiver converters, calibrating antenna tilt arms, or aligning search radar receiver converters.

Table 21 provides various background information for both CONUS and overseas groups, and reveals several interesting trends. Overseas personnel perform an average of approximately 70 more tasks, and approximately 20 percent fewer of these incumbents are in their first enlistment. Job satisfaction indicators appear to be good for both groups, but a somewhat higher percentage of overseas personnel plan to reenlist (57 percent versus 43 percent). Finally, Table 21 reveals some differences in the type of radar equipment maintained by CONUS and overseas groups. The AN/FPN-16/61 Precision Approach Radar is maintained by a higher percentage of CONUS respondents while the AN/ARC-3 or AN/ARC-27 transceivers and the AN/TPX-42A interrogator set is maintained by approximately 20 percent more overseas respondents than CONUS respondents.

TABLE 20

TASKS WHICH BEST DIFFERENTIATE DAFSC 30351 CONUS AND OVERSEAS PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING		
	CONUS	OVERSEAS	
	30351 PERSONNEL (N=277)	30351 PERSONNEL (N=116)	DIFFERENCE
ALIGN DEMULTIPLEXERS	20	4	+16
ALIGN MULTIPLEXERS	28	14	+14
DEVELOP TRAINING AIDS	20	8	+12
ALIGN DIGITAL MTI RECEIVERS	26	14	+12
PARTICIPATE IN MEETINGS, SUCH AS STAFF MEETINGS, BRIEFINGS, CONFERENCES, OR WORKSHOPS	35	24	+11
ISOLATE DEMULTIPLEXER MALFUNCTIONS	14	3	+11
ISOLATE MULTIPLEXER MALFUNCTIONS	26	16	+10
ISSUE JOB CONTROL NUMBERS	24	14	+10
ISOLATE DIGITAL TO ANALOG CONVERTER MALFUNCTIONS	30	29	+ 1
PERFORM OPERATOR MAINTENANCE ON VEHICLES	38	37	+ 1
MAINTAIN TECHNICAL ORDER FILES	35	35	*
REMOVE OR REPLACE TV PPI UNIT SUBASSEMBLIES	35	35	*
ALIGN STAGGER PRF SYSTEMS	50	50	*
REMOVE OR REPLACE TV MONITOR SUBASSEMBLIES	32	32	*
ALIGN TELEVISION (TV) CAMERAS	36	37	- 1
ALIGN SEARCH RADAR RECEIVER CONVERTERS	30	61	-31
REMOVE OR REPLACE ANTENNA TILT MECHANISMS	16	48	-32
REMOVE OR REPLACE ANTENNA TILT ALARMS	13	45	-32
CALIBRATE ANTENNA TILT ALARMS	13	46	-33
ISOLATE ANTENNA TILT ALARM MALFUNCTIONS	15	50	-35
ISOLATE SEARCH RADAR RECEIVER CONVERTER MALFUNCTIONS	27	62	-35
REMOVE OR REPLACE SEARCH RADAR RECEIVER CONVERTER SUBASSEMBLIES	23	59	-36
REMOVE OR REPLACE SEARCH RADAR RECEIVER CONVERTERS	23	59	-36

* DENOTES LESS THAN ONE PERCENT

TABLE 21
BACKGROUND AND JOB SATISFACTION INFORMATION
FOR DAFSC 30351 CONUS AND OVERSEAS GROUPS

	<u>30351</u> <u>CONUS</u> <u>PERSONNEL</u>	<u>30351</u> <u>OVERSEAS</u> <u>PERSONNEL</u>
AVERAGE NUMBER OF TASKS PERFORMED:	214	282
PERCENT SUPERVISING:	32%	28%
AVERAGE MONTHS TAFMS:	65	74
PERCENT IN FIRST ENLISTMENT:	44%	25%
 JOB INTEREST:	 76%	 80%
JOB UTILIZES TALENTS AT LEAST FAIRLY WELL:	79%	83%
JOB UTILIZES TRAINING AT LEAST FAIRLY WELL:	80%	80%
REENLISTMENT INTENTIONS:	43%	57%
 WORK SHIFT:	 36%	 16%
DAY	36%	16%
ROTATING 8-HOUR	24%	45%
VARIABLE	13%	16%
 TYPES OF RADAR EQUIPMENT MAINTAINED:	 30%	 27%
AN/FPN-47A AIRPORT SURVEILLANCE RADAR	30%	27%
AN/GPA-131 VIDEO MAPPING UNIT	57%	69%
AN/GPA-133 RADAR BRIGHT DISPLAY EQUIPMENT	65%	70%
AN/TPX-49 RANGE AZIMUTH BEACON	46%	54%
AN/FPN-16/61 PRECISION APPROACH RADAR	51%	35%
AN/ARC-3 VHF TRANSCEIVER	22%	54%
AN/ARC-27 UHF TRANSCEIVER	24%	53%
AN/MPN-14A MOBILE RAPCON	14%	24%
AN/TPX-42A INTERROGATOR SET	40%	60%
15614B SUITCASE/RADAR SIMULATOR	26%	41%

ANALYSIS OF MAJOR COMMAND DIFFERENCES

An analysis of the tasks and duties performed by MAJCOM groups can highlight important differences. In many specialties, the jobs performed by various groups of personnel differs greatly between MAJCOMs; however, this is not the case with the 303X1 specialty. The four major users of 303X1 personnel (AFCC, ATC, SAC, and TAC) were examined, and the personnel in all four MAJCOMs were found to be performing some unique tasks. However, in general, the types of tasks performed by AFCC, SAC, and TAC personnel are fairly similar, and only Air Training Command (ATC) respondents seem to perform a substantially different job.

Given below are brief job descriptions concerning the four MAJCOM users of 303X1 personnel. In addition, four tables at the end of this section provide job and background information for each of four MAJCOM groups identified above. For an overall view of how jobs vary between MAJCOM groups, Table 22 reveals the relative job time spent performing duties. For example, ATC personnel spend 52 percent of their job time performing training related tasks, while AFCC personnel spend only two percent of their time performing the same duty. Table 23 lists representative tasks which best differentiate MAJCOM groups, and seems to reflect some of the job trends identified in Table 22. For example, TAC personnel seem to be more likely to perform tasks involving azimuth blankers or remote line amplifiers than the personnel in other MAJCOMs. Table 24 lists various types of background information for MAJCOM groups, and reveals AFCC personnel perform the highest average number of tasks (247), have the highest average months TAFMS (97), and have the highest percentage of 7-skill level personnel (32 percent). Finally, Table 25 reveals various job satisfaction and related data for each MAJCOM group. For example, 86 percent of SAC personnel find their job interesting and believe their talents are being utilized at least fairly well.

SAC

The 14 personnel who are assigned to this MAJCOM perform primarily a technical job, and spend a majority of their job time performing radar maintenance duties (Table 22). These incumbents are differentiated due to the nature of some of the radar display equipment maintenance tasks they perform, such as replacing digital MTI receivers, aligning flat face correction circuits, or isolating random access PPI malfunctions. Seventy-nine percent of these respondents hold the 5-skill level, and all are located within the CONUS. Job satisfaction indicators appear to be about average except for reenlistment intentions, with only 36 percent of these personnel planning to reenlist.

AFCC

The bulk of the personnel in the 303X1 specialty are assigned to this MAJCOM. The job performed by these incumbents appear to be somewhat broader than the jobs performed by the personnel in other MAJCOMs, with these incumbents performing an average of 247 tasks. These incumbents

spend a majority of their job time on various aspects of Air Traffic Control Radar maintenance, and most of the differentiating tasks performed by these respondents also involve radar maintenance. Typical differentiating tasks performed by these incumbents include isolating antenna servo drive system malfunctions, isolating analog video processor or detection system malfunctions, or replacing search radar receiver converters. As stated earlier, AFCC incumbents appear to be the most senior, averaging 97 months TAFMS and only 32 percent are in their first enlistment. In addition, a relatively high percentage of these personnel maintain the AN/GPA-131, AN/MPN-14H, or AN/TPX-42A radars or radar equipment.

TAC

Only 11 respondents were identified as being assigned to this MAJCOM, and like the MAJCOM groups described above, these respondents also perform a job primarily involving radar maintenance. Many of the tasks these respondents perform are the same as SAC and AFCC personnel, but tasks involving azimuth blankers or computers, such as adjusting azimuth blankers or testing programs in radar computers, are performed by substantially higher percentages of TAC personnel. These respondents have the lowest average months TAFMS (37), and relatedly, have the highest percentage of personnel in their first enlistment. Job satisfaction data indicates these respondents are satisfied with their job, with 91 percent perceiving their training is being utilized at least fairly well and 54 percent planning to reenlist.

ATC

The personnel assigned to this MAJCOM were the only ones found to be performing a distinctly different job. Table 22 reveals these incumbents spend a majority (52 percent) of their job time performing training related tasks. All of these respondents are located at Keesler AFB MS, and are responsible for conducting various aspects of 303X1 resident course classroom training. As expected, tasks which best differentiate these incumbents are also training related, and include conducting resident course classroom training, preparing lesson plans, or developing training aids. A review of background data reveals these incumbents perform the lowest average number of tasks (36) and have the highest percentage of personnel working a day shift (61 percent). Overall, these respondents have the best job satisfaction indicators, with 96 percent finding their job interesting, 98 percent perceiving their training is being utilized at least fairly well, and 62 percent planning to reenlist.

Summary

The technical jobs performed by 303X1 personnel assigned to SAC, AFCC, and TAC varies little, although some task differences do exist. The personnel in these MAJCOMs primarily perform radar maintenance tasks, and in addition similar percentages can be found maintaining the same types of radars and radar equipment. The biggest difference in the types of jobs performed by MAJCOM groups occurs with Air Training Command personnel. These incumbents spend substantially lower percentages of time on radar maintenance duties, and very few of these personnel report maintaining any type of radar or radar equipment. Instead, these incumbents are responsible for conducting resident course classroom training, and consequently spend most of their job time performing training related tasks.

TABLE 22
RELATIVE PERCENT TIME SPENT ON DUTIES BY 303X1 MAJOR COMMAND GROUPS

DUTIES	SAC PERSONNEL (N=14)	AFCC PERSONNEL (N=662)	TAC PERSONNEL (N=11)	ATC PERSONNEL (N=44)
ORGANIZING AND PLANNING	2	3	1	6
DIRECTING AND IMPLEMENTING	4	3	* *	5
INSPECTING AND EVALUATING	3	6	* *	5
TRAINING	5	2	* *	52
PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	6	9	4	8
PERFORMING OPERATIONS FUNCTIONS	4	4	9	3
PERFORMING SITE SUPPORT FUNCTIONS	2	3	2	2
PERFORMING RADAR SYSTEM INSTALLATION AND REMOVAL FUNCTIONS	1	3	2	*
PERFORMING GENERAL AND PREVENTIVE MAINTENANCE	19	16	23	3
MAINTAINING POWER AND DISTRIBUTION EQUIPMENT	2	3	4	*
MAINTAINING TIMING SYSTEMS	2	3	4	1
MAINTAINING TRANSMITTER SYSTEMS	8	8	10	3
MAINTAINING ANTENNA SYSTEMS	5	5	5	2
MAINTAINING RECEIVER SYSTEMS	9	12	13	4
MAINTAINING DISPLAY EQUIPMENT	11	9	10	3
MAINTAINING REMOTE EQUIPMENT	3	2	3	1
MAINTAINING ANCILLARY EQUIPMENT	9	7	7	*
MAINTAINING IDENTIFICATION FRIEND OR FOE (IFF) AND SELECTIVE IDENTIFICATION FEATURE (SIF) EQUIPMENT	4	4	3	*
MAINTAINING RANGE AND ANGLE TRACKING SYSTEMS	*	*	*	*
MAINTAINING COMPUTER SYSTEMS	*	*	*	*

* DENOTES LESS THAN ONE PERCENT

TABLE 23
REPRESENTATIVE TASKS WHICH BEST DIFFERENTIATE MAJOR COMMAND GROUPS

<u>TASKS</u>	<u>SAC PERSONNEL</u>	<u>AFCC PERSONNEL</u>	<u>TAC PERSONNEL</u>	<u>ATC PERSONNEL</u>
ISOLATE JITTER PRF SYSTEM MALFUNCTIONS	21	11	9	-
REMOVE OR REPLACE JITTER PRF SYSTEM SUBASSEMBLIES	21	8	9	-
REMOVE OR REPLACE DIGITAL MTI CANCELLATION SYSTEMS	29	16	9	-
REMOVE OR REPLACE DIGITAL MTI RECEIVERS	29	16	18	-
ALIGN FLAT FACE CORRECTION CIRCUITS	64	29	27	7
ISOLATE RANDOM ACCESS PPI MALFUNCTIONS	21	4	-	-
ALIGN DUAL VIDEO DISTRIBUTION LINE AMPLIFIERS	21	3	-	5
REMOVE OR REPLACE ANTI-TRANSMIT-RECEIVE OR TRANSMIT-RECEIVE TUBES	-	29	-	-
REMOVE OR REPLACE TRANSMITTER TRIGGER AMPLIFIERS	7	26	9	-
ISOLATE ANTENNA SERVO DRIVE SYSTEM MALFUNCTIONS	21	31	9	-
ISOLATE ANTENNA TILT OR LIMIT SWITCH MALFUNCTIONS	21	33	9	2
REMOVE OR REPLACE ANTENNA SLIP RING BRUSHES	-	22	9	-
ISOLATE ANALOG VIDEO PROCESSOR OR DETECTION SYSTEM MALFUNCTIONS	7	28	9	-
REMOVE OR REPLACE SEARCH RADAR RECEIVER CONVERTERS	14	35	9	2
PERFORM THUMBWHEEL ACCURACY CHECKS	7	5	18	-
TEST PROGRAMS IN RADAR COMPUTERS	-	3	36	2
ADJUST AZIMUTH BLANKERS	29	35	18	-
ISOLATE AZIMUTH BLANKER MALFUNCTIONS	29	73	73	7
ALIGN REMOTE LINE AMPLIFIERS	50	42	64	2
ADMINISTER TESTS	7	5	73	7
CONDUCT RESIDENT COURSE CLASSROOM TRAINING	-	2	-	82
COUNSEL TRAINEES ON TRAINING PROGRESS	21	32	-	68
PREPARE LESSON PLANS	-	6	64	-
DEVELOP TRAINING AIDS	7	18	84	66

TABLE 24

BACKGROUND INFORMATION FOR 303X1 MAJOR COMMAND GROUPS

	<u>SAC PERSONNEL</u>	<u>AFCC PERSONNEL</u>	<u>TAC PERSONNEL</u>	<u>ATC PERSONNEL</u>
AVERAGE NUMBER OF TASKS PERFORMED:	195	247	233	36
AVERAGE PAYGRADE:	E-4	E-4, E-5	E-3, E-4	E-4, E-5
DAFSC:				
30331	7%	16%	46%	16%
30351	79%	52%	54%	59%
30371	14%	32%	-	25%
30399	-	-	-	-
AVERAGE NUMBER OF PERSONNEL SUPERVISED:	1	1	-	2
AVERAGE MONTHS TAMS:	58	97	37	86
PERCENT OF FIRST ENLISTMENT PERSONNEL:	64%	32%	73%	34%
PERCENT LOCATED IN CONUS:	100%	69%	82%	98%
WORK SHIFT:				
DAY	36%	40%	9%	61%
ROTATING EIGHT HOUR	36%	25%	36%	27%
VARIABLE	14%	14%	27%	7%
TYPE OF EQUIPMENT MAINTAINED:				
AN/ARC-3 VHF TRANSCIVER	36%	34%	9%	4%
AN/FPN-47 AIRPORT SURVEILLANCE RADAR	21%	28%	36%	9%
AN/GPA-131 VIDEO MAPPING UNIT	43%	64%	45%	7%
AN/MPN-14H MOBILE RAPCON	14%	18%	-	4%
AN/TPX-42A INTERROGATOR SET	14%	50%	36%	12%

TABLE 25
JOB SATISFACTION DATA FOR 303X1 MAJOR COMMAND GROUPS
(PERCENT MEMBERS RESPONDING)

	<u>SAC PERSONNEL</u>	<u>AFCC PERSONNEL</u>	<u>TAC PERSONNEL</u>	<u>ATC PERSONNEL</u>
<u>I FIND MY JOB:</u>				
NO RESPONSE	-	-	-	-
DULL	7	10	-	2
SO-SO	7	14	18	2
INTERESTING	86	76	82	96
<u>MY JOB UTILIZES MY TALENTS:</u>				
NO RESPONSE	-	-	-	-
NOT AT ALL TO VERY LITTLE	14	20	9	5
FAIRLY WELL OR BETTER	86	80	91	95
<u>MY JOB UTILIZES MY TRAINING:</u>				
NO RESPONSE	-	1	-	-
NOT AT ALL TO VERY LITTLE	7	20	9	2
FAIRLY WELL OR BETTER	93	79	91	98
<u>I PLAN TO REENLIST:</u>				
NO RESPONSE	-	-	-	-
NO, PLANNING TO RETIRE	7	8	-	2
NO OR PROBABLY NO	57	43	46	36
YES OR PROBABLY YES	36	49	54	62

TRAINING ANALYSIS

Occupational survey data is just one of the many sources of information which can be used to help make training programs more meaningful and relevant to students. Factors provided in occupational surveys which may be used in evaluating training are the percent of first enlistment members performing task(s), utilization of equipment available at the technical school for training, and task difficulty ratings. These factors can be used in evaluating the Specialty Training Standard (STS) and Plan of Instruction (POI) for the 303X1 specialty. Technical school personnel at Keesler AFB MS matched inventory tasks to areas of instruction outlined in the STS, dated January 1978 and the POI for course 3ABR30331, dated January 1980. A complete computer listing of the percent members performing and task difficulty ratings for each task statement along with the STS and POI matching has been forwarded to the technical school for their use in reviewing training documents. A summary of that information is described below.

Analysis of Task Difficulty

The relative difficulty of each task in the task inventory was assessed through ratings of 40 experienced 7- and 9-skill level Air Traffic Control Radar NCOs. These tasks were processed to produce an ordered listing of all tasks in terms of their relative difficulty and were standardized to have an average difficulty of 5.0. The task listing for this AFSC is somewhat different than the task listing presented in AFPT 90-303-400, Volume I. The task difficulty analysis in this report uses only the ratings from 303X1 task difficulty raters, while the AFPT 90-303-400, Volume I training analysis utilizes the combined ratings from the personnel in three specialties (AFSS 303X1, 303X2, and 303X3). Because the personnel in one specialty may view the difficulty of tasks somewhat differently than the personnel in another specialty, it is important to use only specialty specific raters when analyzing specialty specific documents, such as the STS or POI. Therefore, the analysis of task difficulty, and the analysis of the 303X1 STS and POI will only use the ratings of 303X1 personnel. (For a more complete description of these ratings, see the Task Factor Administration section in the INTRODUCTION).

In order to help insure that the 303X1 raters reflect the some perceptions as the rest of the career ladder concerning task difficulty, it is necessary that a representative sample of task difficulty raters be obtained. Table 26 reveals the major command distribution of the task difficulty raters versus the same distribution of all the personnel assigned to the 303X1 specialty, and reveals a representative sample of task difficulty raters. Having a representative sample is extremely important, especially when the personnel in different major commands utilize or maintain different types of equipment, because a large overrepresentation of one major command may lead to spurious task difficulty ratings. This was not the case with 303X1 task difficulty ratings.

Table 27 lists those tasks rated the most difficult by 303X1 task difficulty raters. Most of these tasks are maintenance oriented, and involve isolating malfunctions on various pieces of radar or ancillary equipment. However, the tasks typically rated the most difficult include designing circuitry, preparing scheme packages, such as drawing or blueprints, supervising Ground Radar Superintendents (AFSC 30399), and programming computers. Overall, very few of the most difficult tasks are performed by more than 25 percent of the total 303X1 sample.

In order to determine some of the more common tasks 303X1 personnel perform which are above average in difficulty, Table 28 is provided. Table 28 lists those tasks rated above average in difficulty and performed by at least 25 percent of the 303X1 total sample. Isolating various types of IFF/SIF malfunctions, such as isolating IFF/SIF antenna system, defruiter, IDP, decoder, or RABM malfunctions make up a majority of the tasks found in Table 28.

Most of the tasks rated average in difficulty are also maintenance oriented, but involve adjusting, aligning, or removing or replacing various types of radar components or subcomponents (see Table 29). Some of these tasks include adjusting transmitter stable local oscillators (STALO), removing random access PPIs, aligning record printers, or replacing demultiplexers. Generally, a greater percentage of 303X1 personnel perform tasks of average difficulty than the tasks rated the most difficult.

Table 30 lists the tasks rated the least difficult by senior 303X1 personnel. Generally, these tasks involve routine maintenance or upkeep of radar facilities, such as removing fuses, cleaning air filters, lubricating van or trailer chassis, or performing area beautification. However, many of the tasks rated the least difficult by 303X1 personnel involved Automatic Tracking Radar (303X3) operator functions, and includes such tasks as replotting RBS data or recording range departure times. As expected, most of the tasks rated the least difficult (except for the 303X3 operator tasks) are performed by large percentages of 303X1 personnel.

Analysis of the 303X1 Specialty Training Standard (STS)

The 303X1 Specialty Training Standard (STS), dated January 1977, was reviewed for first enlistment (1-48 months TAFMS), and 5- and 7-skill level ATC Radar personnel. Subject matter specialists at the Keesler Technical Training Center assisted in the analysis by matching job inventory tasks to specific paragraphs in the STS. Paragraphs which required specific task knowledge and task performance criteria were examined with matched job inventory tasks and task difficulty and percent members performing information to determine whether the paragraph was supported. For the 303X1 specialty, the STS was found to give a broad overview of the career ladder, and all the STS paragraphs appear to be well justified based on occupational data.

Analysis of the 3ABR30331 Plan of Instruction (POI)

The Plan of Instruction (POI) for course 3ABR30331, dated January 1980 was also reviewed for first job (1-24 months TAFMS), first enlistment (1-48 months TAFMS), and second enlistment (49-96 months TAFMS) groups. As with the STS, subject matter specialists at the Keesler Technical Training Center also assisted in the analysis by matching job inventory tasks to specific criterion objectives in the 3ABR30331 POI. Each criterion objective was examined based on task difficulty and percent members performing vectors. Overall, all criterion objectives were supported by job inventory data, and no major discrepancies were noted. In addition, computer printouts were provided to technical school personnel for future refinements in either the 303X1 STS or 3ABR30331 resident course POI.

Proposed Channelization of Training for 30331 Personnel

A recent issue concerning the 3ABR30331 resident course is a proposal to restructure the course to provide channelized training for 3-skill level incumbents. Four separate channelized courses would be used in order to provide more specialized and extensive training for different types of ATC radars. Shreds would then be awarded to designate incumbents completing the respective training. These shreds would only be used at the 3-skill level, and would merge at the 5-skill level. A list of the course designations and associated equipment is presented below:

<u>COURSE DESIGNATION</u>	<u>EQUIPMENT</u>	<u>PERCENT OF FIRST ENLISTMENT PERSONNEL MAINTAINING</u>
E3ABR30331-001	GPN-20/FPN-62	9/*
E3ABR30331-002	GPN-20/GPN-22	9/10
E3ABR30331-003	GPN-12/FPN-62	28/*
E3ABR30331-004	GPN-12/GPN-22	28/10

*NO DATA WAS COLLECTED FOR THE AN/FPN-62

Based on survey data, a channelized training approach for 30331 personnel cannot be supported. However, the low percent members maintaining these types of equipment may be due to the fact this equipment has only recently been implemented in the field, and therefore few incumbents have had the opportunity to maintain them. If this is the case, then a channelized training approach may be appropriate.

TABLE 26
MAJOR COMMAND REPRESENTATION OF 303X1 TASK DIFFICULTY RATERS
(N=40)

<u>MAJOR COMMAND</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF TASK DIFFICULTY RATERS</u>
AFCC	92	93
ATC	5	5
OTHER	<u>3</u>	<u>2</u>
TOTAL	100	100

TABLE 27
REPRESENTATIVE TASKS RATED THE MOST DIFFICULT BY 303X1 RATERS

TASKS	PERCENT OF 303X1 PERSONNEL PERFORMING (N=750)
TASK DIFFICULTY	
DESIGN CIRCUITRY	8.75 *
PREPARE SCHEME PACKAGES, SUCH AS DRAWING OR BLUEPRINTS	7.38 1
SUPERVISE GROUND RADAR SUPERINTENDENTS (AFSC 30399)	7.34 *
ISOLATE IFF/SIF VSP MALFUNCTIONS	7.30 40
PROGRAM COMPUTERS	7.22 3
ISOLATE IFF/SIF IDP MALFUNCTIONS	7.21 38
ISOLATE RANDOM ACCESS PPI MALFUNCTIONS	7.15 4
PREPARE RECOMMENDATIONS FOR AWARDS OR DECORATIONS	7.06 15
ISOLATE SMEARING GENERATOR MALFUNCTIONS	7.01 4
ESTABLISH HOST TENANT SUPPORT AGREEMENTS	6.92 4
COMPUTE ANGLE BIAS OR CURSOR VOLTAGES	6.92 25
DIRECT GROUND DIRECTED BOMBING (GDB) RUNS	6.88 *
ISOLATE PISAB SYSTEM MALFUNCTIONS	6.88 2
ISOLATE TV PPI UNIT MALFUNCTIONS	6.82 39
ISOLATE VECTOR GENERATOR CONTROLLER MALFUNCTIONS	6.81 1
ISOLATE VECTOR GENERATOR MALFUNCTIONS	6.81 2
ISOLATE IFF/SIF LOW ALTITUDE ALARM SYSTEM MALFUNCTIONS	6.79 5
ISOLATE DIGITAL MTI CANCELLATION SYSTEM MALFUNCTIONS	6.77 22
ISOLATE MULTIPLEXER MALFUNCTIONS	6.74 22
ISOLATE COMPUTER DATA ENTRY (CDE) PANEL MALFUNCTIONS	6.74 3
ISOLATE SITUATION DISPLAY MALFUNCTIONS	6.73 1
ISOLATE AIRCRAFT SIMULATOR COMPUTER MALFUNCTIONS	6.70 3
ISOLATE PULSE DEMODULATOR MALFUNCTIONS	6.69 1
ALIGN DIGITAL HEIGHT COMPUTER AND EVALUATION SYSTEMS	6.68 *
ISOLATE TV CAMERA MALFUNCTIONS	6.68 38

* DENOTES LESS THAN ONE PERCENT

TABLE 28

TASKS RATED ABOVE AVERAGE IN DIFFICULTY AND PERFORMED
BY AT LEAST 25 PERCENT OF 303X1 PERSONNEL

<u>TASKS</u>	<u>TASK DIFFICULTY</u>	<u>PERCENT OF 303X1 PERSONNEL PERFORMING (N=750)</u>
ISOLATE IFF/SIF VSP MALFUNCTIONS	7.30	40
ISOLATE IFF/SIF IDP MALFUNCTIONS	7.21	38
COMPUTE ANGLE BIAS OR CURSOR VOLTAGES	6.92	25
ISOLATE TV PPI UNIT MALFUNCTIONS	6.82	39
ISOLATE ANALOG MTI CANCELLATION SYSTEM MALFUNCTIONS	6.76	43
ISOLATE IFF/SIF RABM MALFUNCTIONS	6.69	43
ISOLATE TV CAMERA MALFUNCTIONS	6.68	38
ISOLATE ANALOG MTI RECEIVER MALFUNCTIONS	6.59	42
ISOLATE INDICATOR ANALOG CHARACTER/SYMBOL GENERATOR MALFUNCTIONS	6.59	35
ISOLATE IFF/SIF ANTENNA SYSTEM MALFUNCTIONS	6.57	35
ISOLATE PARAMETRIC AMPLIFIER MALFUNCTIONS	6.56	49
ISOLATE IFF/SIF RECEIVER MALFUNCTIONS	6.53	44
ISOLATE IFF/SIF TSDA MALFUNCTIONS	6.51	40
ISOLATE ANALOG VIDEO PROCESSOR OR DETECTION SYSTEM MALFUNCTIONS	6.50	25
ISOLATE IFF/SIF DECODER MALFUNCTIONS	6.49	25
ISOLATE FLAT FACE CORRECTION CIRCUIT MALFUNCTIONS	6.49	33
ISOLATE IFF/SIF DEFRUITTER MALFUNCTIONS	6.48	37
DISASSEMBLE OR ASSEMBLE STABLE LOCAL OSCILLATOR (STALO) OR DISCRIMINATOR CAVITIES	6.46	32
ISOLATE TV MONITOR MALFUNCTIONS	6.44	39
ISOLATE IFF/SIF CODER MALFUNCTIONS	6.43	26
ISOLATE SEARCH RADAR RECEIVER CONVERTER MALFUNCTIONS	6.43	35
PERFORM MICROMINIATURE OR HIGH RELIABILITY SOLDERING	6.41	34
ISOLATE PRECISION SWEEP GENERATOR MALFUNCTIONS	6.38	56
ALIGN TV PPI UNITS	6.38	40

TABLE 29
REPRESENTATIVE TASKS RATED AVERAGE IN DIFFICULTY BY 303X1 RATERS

<u>TASKS</u>	<u>TASK DIFFICULTY</u>	<u>PERCENT OF 303X1 PERSONNEL PERFORMING (N=750)</u>
PREPARE MATERIAL DEFICIENCY REPORTS	5.05	17
EVALUATE SELF-INSPECTION PROGRAMS	5.05	9
REMOVE OR REPLACE AZIMUTH BLANKERS	5.05	23
PREPARE BRIEFINGS	5.04	13
BORESIGHT ANTENNAS	5.04	7
EVALUATE UNIT EMERGENCY PLANS	5.03	3
REMOVE OR REPLACE DATA DISTRIBUTION UNITS	5.03	12
ADJUST TRANSMITTER STABLE LOCAL OSCILLATORS (STALO)	5.03	53
SET TIMING DEVICES	5.02	8
REMOVE OR REPLACE RANDOM ACCESS PPIs	5.02	2
ADJUST TRANSMITTER KLYSTRON POWER AMPLIFIER FOCUS CIRCUITS	5.01	4
REMOVE OR REPLACE CLUTTER MAPPERS	5.00	2
FABRICATE CABLE HARNESSSES	5.00	15
REMOVE OR REPLACE AVA ASSEMBLIES	5.00	*
REMOVE OR REPLACE SIDE LOBE SUPPRESSION SYSTEM SUBASSEMBLIES	5.00	8
ALIGN RECORD PRINTERS	4.99	*
ADJUST ANALOG SYNCHRONIZERS	4.99	34
REMOVE OR REPLACE DEMULTIPLEXERS	4.99	13
ALIGN ANALOG SYNCHRONIZERS	4.98	32
REMOVE OR REPLACE RF FILTERING UNITS	4.98	13
ALIGN SERVO DATA POTENTIOMETERS	4.98	39
CONDUCT STAFF MEETINGS	4.98	2
INSTALL OR REMOVE TARGET SIMULATOR EQUIPMENT	4.97	12
FABRICATE DIAxIAL CABLES	4.96	3
MEASURE CIRCULAR ERRORS OR AZIMUTHS	4.96	2

* DENOTES LESS THAN ONE PERCENT

TABLE 30
REPRESENTATIVE TASKS RATED THE LEAST DIFFICULT BY 303X1 RATERS

<u>TASKS</u>	<u>TASK DIFFICULTY</u>	<u>PERCENT OF 303X1 PERSONNEL PERFORMING (N=750)</u>
REPLOT RBS DATA	1.57	*
REPLOT ECM DATA	1.57	*
RECORD RANGE DEPARTURE TIMES	1.57	*
INSTALL PAPER ON TELETYPE	1.82	*
CLEAN OR REPLACE AIR OR MOISTURE FILTERS	2.12	51
PERFORM AREA BEAUTIFICATION	2.30	49
REMOVE OR REPLACE FUSES OR FUSE HOLDERS	2.35	74
REMOVE OR REPLACE ELECTRON TUBES	2.37	68
INSTALL OR REMOVE PORTABLE LATRINES	2.39	2
PERFORM GENERAL HOUSEKEEPING PROCEDURES	2.45	66
PERFORM I BAND RADAR SEARCH OR LOCK-ON PROCEDURES	2.46	*
INSTALL OR REMOVE OBSTRUCTION LIGHTS	2.48	25
LUBRICATE MECHANICAL BEARING SURFACES	2.57	36
LUBRICATE VAN OR TRAILER CHASSIS	2.62	20
PITCH OR STRIKE TENTS	2.63	11
DRIVE SMALL GOVERNMENT VEHICLES, SUCH AS PICKUPS OR PASSENGER VEHICLES	2.67	63
ISSUE JOB CONTROL NUMBERS	2.68	21
SCORE TESTS	2.85	9
REMOVE OR REPLACE VENTILATION DUCTS	2.88	14
PERFORM GENERAL FACILITY MAINTENANCE OR REPAIRS, SUCH AS PAINTING OR REMODELING ROOMS OR REPAIRING PLUMBING FIXTURES	2.93	35
PERFORM OPERATOR MAINTENANCE ON VEHICLES	3.00	39
MAINTAIN VEHICLE CONTROL LOGS	3.09	21
DEVELOP ORGANIZATIONAL CHARTS	3.11	7
REMOVE OR REPLACE BULB HOLDERS	3.14	42

* DENOTES LESS THAN ONE PERCENT

COMPARISON TO PREVIOUS SURVEY

The results of this 303X1 survey were compared to those of a previous Occupational Survey Report, AFPT 90-303-198 dated May 1977. This comparison can help identify changes in the career ladder due to the influx of new personnel, in addition to identifying changes due to changing management policies, mission changes, new operational equipment etc. Generally, the two studies reported relatively consistent findings, with differences appearing in the following areas:

A thorough analysis of the tasks and jobs performed as well as the equipment maintained by first enlistment respondents reveal some interesting trends. While the tasks and jobs performed by first enlistment respondents has changed little over the last four years, Table 31 reveals there has been some equipment changes. With the exception of the OS-24/126 synchroscope and powered or manual turntables, substantially higher percentages of 1981 first enlistment personnel maintain the most common types of ATC radars and radar equipment. This has some training ramifications, because if higher percentages of 1981 first enlistment personnel are utilizing the same or even more types of equipment since 1977, a corresponding increase in training for first enlistment personnel is probably necessary to retain the same level of maintenance proficiency.

Table 32 reveals various job satisfaction indicators for both 1977 and 1981 first and second enlistment and career personnel, and also reveals some interesting trends. Overall, the percentages of 1977 and 1981 first enlistment incumbents finding their job interesting or utilizing their talents and training appear to be about the same. However, a substantial difference is noted with reenlistment intentions, with approximately 25 percent fewer 1981 first enlistment personnel planning to reenlist than comparative 1977 personnel. Similar percentages of both 1977 and 1981 second term personnel were identified as finding their job interesting, planning to reenlist, or perceiving their job utilizes their training at least fairly well. However, a somewhat lower percentage (16 percent) of 1981 second enlistment personnel report their job utilizes their talents at least fairly well. Finally, no real differences were noted for 1977 and 1981 career incumbents, with roughly the same percentages of these incumbents planning to reenlist, finding their job interesting, etc.

A review of the 303X1 career ladder structure reveals no significant job changes have occurred in the last four years (see Table 33). However, three small independent job types identified in the 1977 study (ATC Radar Evaluation Technicians, Headquarters Level Technical Advisors, or Staff NCOs) were not identified in the 1981 report. This may be due to the fact that a somewhat more general inventory was used to assess the jobs performed not only be 303X1 respondents, but also to capture the jobs performed by 303X2 and 303X3 personnel. However, overall these changes are minor, and no substantial structure differences were noted.

TABLE 31

A COMPARISON OF THE EQUIPMENT MAINTAINED BY 1977 AND 1981
FIRST ENLISTMENT GROUPS

RADAR EQUIPMENT	PERCENT OF FIRST ENLISTMENT PERSONNEL MAINTAINING	
	1977	1981
AN/GPA-133 RADAR BRITE DISPLAY EQUIPMENT	65	75
AN/GPA-131 VIDEO MAPPING UNIT	60	70
AN/FPN-16/61 PRECISION APPROACH RADAR	50	55
AN/TPX-49 RANGE AZIMUTH BEACON MONITOR	34	53
AN/TPX-42A INTERROGATOR SET	36	45
AN/TPX-42 INTERROGATOR SET	35	42
OS-24/126 SYNCHROSCOPE	71	41
AN/FPN-47 AIRPORT SURVEILLANCE RADAR	28	38
AN/ARC-27 UHF TRANSCEIVER	24	36
AN/ARC-3 VHF TRANSCEIVER	24	36
15G/4B SUITCASE/RADAR SIMULATOR	*	35
POWERED OR MANUAL TURNTABLE	49	30

*THE 15G/4B WAS NOT LISTED IN THE 1977 JOB INVENTORY

TABLE 32

A COMPARISON OF JOB SATISFACTION DATA FOR 1977 AND 1981
FIRST AND SECOND ENLISTMENT AND CAREER GROUPS
(PERCENT MEMBERS RESPONDING)

	FIRST ENLISTMENT		SECOND ENLISTMENT		CAREER	
	1977	1981	1977	1981	1977	1981
FINDS JOB INTERESTING:	77	77	80	77	87	75
UTILIZES TALENTS WELL:	81	81	94	78	92	82
UTILIZES TRAINING WELL:	82	81	80	77	83	82
INTENDS TO REENLIST:	62	36	53	48	63	61

TABLE 33

A COMPARISON OF THE JOBS IDENTIFIED IN THE 1977 AND 1981 OSRs

<u>1977 CLUSTERS AND INDEPENDENT JOB TYPES</u>	<u>EQUIVALENT 1981 CLUSTERS AND INDEPENDENT JOB TYPES</u>
ATC RADAR REPAIR SPECIALISTS	
ATC RADAR REPAIR TECHNICIANS	
COMBAT COMMUNICATIONS AND ENGINEERING AND INSTALLATION SPECIALISTS	ATC RADAR MAINTENANCE PERSONNEL
COMBAT COMMUNICATIONS APPRENTICES	
ATC RADAR REPAIRMAN FIRST JOB ASSIGN- MENT	
ENGINEERING AND INSTALLATION TEAM CHIEF	ELECTRICAL INSTALLATION TEAM MEMBERS
APPRENTICE ATC RADAR REPAIRMEN	PAR REPAIRMEN
ATC RADAR EVALUATION TECHNICIANS	-
QUALITY CONTROL TECHNICIANS	QUALITY CONTROL PERSONNEL
QUALITY CONTROL SUPERVISORS	
RADAR MAINTENANCE SECTION CHIEFS	RADAR MAINTENANCE SUPERVISORS
MAINTENANCE SUPERINTENDENTS	
NCOICs, MAINTENANCE CONTROL	
TRAINING SUPERVISORS	
JOB CONTROLLERS	JOB CONTROL PERSONNEL
HANDS-ON EQUIPMENT INSTRUCTORS	RESIDENT COURSE INSTRUCTORS
INSTRUCTORS	
HEADQUARTERS LEVEL TECHNICAL ADVISORS	-
STAFF NCOs	-
-	ANCILLARY MAINTENANCE PERSONNEL

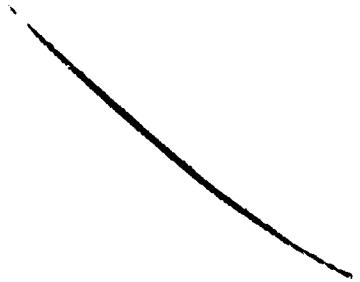
IMPLICATIONS

The Air Traffic Control Radar career ladder is fairly heterogeneous, with a wide variety of jobs performed by 303X1 personnel. However, the technical radar maintenance jobs performed by 303X1 personnel are fairly homogeneous, with a majority of these personnel falling into one major job group. The nontechnical jobs performed by 303X1 personnel vary considerably, ranging from job control to supervisors to instructors. Most of the personnel in the nontechnical jobs are more senior, having a higher paygrade and a higher average of months TAFMS than the personnel performing technical radar maintenance jobs.

The career field has remained relatively stable over the last few years, and no drastic changes are foreseen in the near future. However, the introduction of several new types of air traffic control radar systems, and the corresponding addition of shreds at the 3-skill level to accommodate training for this new equipment, will cause some changes. However, these changes should not have a big impact on the overall specialty structure.

An examination of first enlistment personnel reveals some interesting trends. First, higher percentages of these incumbents maintain the types of equipment identified in the 1977 report. This probably means an increase in course length (since 1977) would be justified in order for first enlistment incumbents to be proficient in their first job. Also, job satisfaction has changed somewhat over time, with substantially fewer 1981 first enlistment personnel planning to reenlist than similar 1977 incumbents.

Overall, job satisfaction indicators are much better for 303X1 personnel than for personnel in related career fields. However, when looking at job satisfaction indicators for the major job groups identified in the career ladder structure, vast differences in satisfaction data are noted. Somewhat unexpectedly, the most dissatisfied 303X1 personnel can be found in the Job Control Personnel cluster. These incumbents do not perform radar maintenance and are not supervisors; instead, they perform an administrative type of job. Air Force managers need to examine this type of job closely to determine if there are ways to help improve the job satisfaction indicators for the personnel who perform this job.



APPENDIX A

Job Type Descriptions

Listed below are brief descriptions of the job types identified in the Air Traffic Control Radar Maintenance career ladder structure. Generally, the relative heterogeneity of job types within any one cluster seems to depend on the cluster itself, with some clusters being relatively homogeneous and other clusters having fairly heterogeneous job types. For additional information, the tables in Appendix A reveal various duty, background, and job satisfaction data for all of the job types identified. (For a further explanation of the job types identified, see the CAREER LADDER STRUCTURE section of this report.)

Air Traffic Control (ATC) Radar Maintenance Personnel

There are ten fairly heterogeneous job types within this cluster. A number of differentiating factors have been identified for these job types, some of which include the types of equipment maintained, the average number of tasks performed, and the nature of the tasks performed. Video Mapper Repairmen spend 20 percent of their job time maintaining receiver systems, and perform an average of 236 tasks. Sixty-one percent of these incumbents maintain AN/GPA-131 Video Mapping Units, and differentiating tasks include isolating video amplifier malfunctions, adjust video indicator mixers, or adjusting ground clutter elimination circuits. ATC IFF/SIF Repairmen spend 14 percent of their job time maintaining IFF/SIF equipment, and differentiating tasks include removing IFF/SIF signal processor subassemblies, aligning IFF/SIF decoders, or isolating IFF/SIF antenna system malfunctions. Job satisfaction indicators are good for these incumbents, with 90 percent finding their job interesting and 100 percent perceiving their job utilizes their talents at least fairly well. Airport Surveillance Radar Repairmen are differentiated due to the fact that 90 percent maintain the AN/GPA-131 Video Mapping Unit and 62 percent maintain the AN/FPN-47 Airport Surveillance Radar. Differentiating tasks for these incumbents include aligning remote line drivers, isolating video mapper pretrigger delay card malfunctions, or aligning performance monitor malfunctions. Senior ATC Radar Repairmen perform the highest average number of tasks (417) of all the job types identified. These incumbents report maintaining a variety of ATC radars and radar equipment, and differentiating tasks performed by these incumbents include removing analog trigger timing system subassemblies, removing analog synchronizer subassemblies, or isolating precision antenna protractor malfunctions. Seventy-one percent of Mobile RAPCON Repairmen are in their first enlistment, and 58 percent maintain the AN/MPN-14H Mobile RAPCON. Since the AN/MPN-14H is a mobile unit, differentiating tasks also appear to be mobility related, and include fabricating minicoaxial cables, installing radio antennas, or loading equipment on trucks or aircraft. Combat Communications Group Personnel perform a fairly high average number of tasks (366), many of which involve maintaining microwave equipment. Differentiating tasks performed by these respondents include aligning microwave transmitters, aligning microwave antennas, installing mobilizers or transporters, and pitching or striking tents. Job satisfaction indicators for these personnel are relatively poor, with only 67 percent finding their job interesting and only 35 percent planning to reenlist. Seventy-one percent of ATC Radar Section Chiefs hold the 7-skill level, and these incumbents supervise an average of five personnel. These incumbents spend approximately 35 percent of their

job time performing supervisory duties, and typical tasks performed include supervising Air Traffic Control Radar Specialists (AFSC 30351), maintaining training records, charts, or graphs, or preparing APRs. These incumbents appear to be the firstline supervisors at many ATC radar locations. Search Radar Section Chiefs are somewhat unique due to the fact that all of these incumbents hold DAFSC 303X2. These incumbents probably grouped into this 303X1 cluster as a result of the relatively high average number of tasks (354) and the similarity of tasks they performed. None of the personnel in the 303X2 clusters identified in the 303XX or 303X2 Occupational Survey Reports performed an average of more than 215 tasks. Search Radar Section Chiefs appear to be the firstline supervisors at many AC and W radar locations, and common tasks performed include supervising Aircraft Control and Warning Technicians (AFSC 30372), determining work priorities, or planning work assignments. Remote Line Repairmen perform a job somewhat similar to Airport Surveillance Radar Repairmen in that both groups of incumbents are differentiated by the remoting type tasks they perform, such as aligning remote line drivers, aligning remote line amplifiers, or removing remote line drivers. However, Remote Line Repairmen perform approximately 80 fewer tasks and have slightly more personnel in their first enlistment than Airport Surveillance Radar Repairman. Finally, Search Radar Repairmen maintain both precision approach and various types of search radars. These incumbents are differentiated primarily by the fact they only perform an average of 93 tasks, which is about three times lower than the average number of tasks performed by the rest job types in this cluster. As expected, a high percentage of these personnel are in their first enlistment (67 percent), and typical tasks include replacing precision receiver converters and replacing search radar receiver converters. (For more information about these job types see Tables I, II, and III.)

Job Control Personnel

There are three job types within this cluster, and personnel from all of the career ladders sampled (303X1, 303X2, and 303X3) can be found in each of the job types. These job types are fairly homogeneous, with all three job types spending similar amounts of time performing the same types of duties. Differentiating factors for these job types include the amount of time spent on supervisory and administrative duties, and the average number of tasks performed. Firstline Job Controllers seem to be the firstline supervisors in a job control section. These incumbents supervise an average of two personnel, spend 37 percent of their job time on supervisory duties, and perform an average of 28 tasks. Typical tasks for these incumbents include determining work priorities, issuing job control numbers, or preparing APRs. Job Controllers spend similar amounts of time on both supervisory and administrative duties as the above job type, but perform a substantially lower average number of tasks (18). Typical tasks performed by these incumbents include establishing maintenance schedules, preparing briefings, and maintaining status boards, graphs, or charts. Junior Job Controllers are differentiated by the low average number of tasks they perform (eight) and by the large amount of time spent (60 percent) performing administrative and supply functions. These incumbents perform a very narrow and limited job, and typical tasks include preparing job/status document forms and issuing job control numbers. Unsurprisingly, these incumbents have extremely poor job satisfaction indicators, with only 37 percent finding their job interesting and 16 percent believing their training is being utilized at least fairly well. (For more information about these job types see Tables IV, V, and VI.)

Radar Maintenance Supervisors

There are five fairly homogeneous job types in this cluster. The differentiating factors for these job types seem to be the average number of tasks performed and the amount of time spent performing operations or supervisory duties. Operations/Analysis NCOICs are all 303X3 personnel, and 92 percent are assigned to SAC. These respondents appear to be the firstline operations supervisors at many of the Combat Evaluation Group (CEVG) detachments. These incumbents spend 31 percent of their time performing operations functions, and typical tasks performed include preparing APRs, directing scoring of mission runs, and conducting daily crew briefings. NCOICs, Radar Maintenance perform the highest average number of tasks (106), and 34 percent are assigned to AFCC. These incumbents appear to be the middle level supervisors at various radar maintenance workcenters, and typical tasks include directing maintenance of facilities or work areas, determining OJT training requirements, or planning work assignments. NCOICs, Maintenance Control appear to be the middle level supervisors for the Job Control Personnel identified earlier. Representative tasks performed by these incumbents include maintaining status boards, graphs, or charts, supervising military personnel with AFSs other than 303X1, 303X2, or 303X3, or preparing APRs. Overall, these incumbents have the lowest job satisfaction indicators, with only 59 percent finding their job interesting and 53 percent perceiving their talents are being utilized at least fairly well. Radar Maintenance Superintendents spend almost 90 percent of their job time on supervisory duties. Seventy-one percent of these respondents hold DAFSC 30399, and these incumbents appear to be the upper level enlisted managers of the 303X1, 303X2, and 303X3 career ladders. Representative tasks performed by high percentages of these personnel include interpreting policies, directives, or procedures for subordinates, evaluating individuals for recognition, or indorsing APRs. Finally, Training Supervisors are differentiated by the large percentage of time spent (32 percent) performing training tasks. Many of these respondents are responsible for the OJT programs at various workcenters, and differentiating tasks include conducting OJT, selecting individuals for specialized training, or implementing training programs other than OJT. Overall, these personnel are satisfied with their job, with 84 percent finding their job interesting and 69 percent planning to reenlist. (For more information about these job types see Tables VII, VIII, and IX.)

Quality Control Personnel

There are three job types identified within this cluster, all three of which are fairly similar to each other. Some differences can be found between these job types, and include the average number of tasks performed and the level at which these respondents conduct quality control programs. NCOICs, Quality Control seem to be the typical quality control personnel found at the workcenters. These incumbents spend 44 percent of their job time inspecting and evaluating and 21 percent of their time performing administrative functions. These incumbents perform the highest average number of tasks (73), some of which include performing equipment inspections, performing personnel proficiency evaluations, and preparing inspection reports. MAJCOM Quality Control Personnel are primarily working at various MAJCOM headquarters, and seem to be responsible for their respective headquarters quality control programs. Typical tasks performed by these

more senior incumbents include reviewing correspondence or reports, analyzing trends in system malfunctions, and evaluating maintenance procedures. Somewhat unexpectedly, these incumbents have relatively low job satisfaction, with only 45 percent finding their job interesting and 35 percent planning to reenlist. Quality Control Inspectors appear to be personnel who recently assumed a quality control type job. Consequently, their experience is temporarily limited, and these incumbents perform a very low average number of tasks (28). Most of the tasks performed by these personnel involve inspecting and evaluating, such as performing activity inspections, evaluating compliance with performance standards, and performing deficiency analysis. (For more information about these job types see Tables X, XI, and XII.)

TABLE I
RELATIVE PERCENT TIME SPENT ON DUTIES BY JOB TYPES
IN THE ATC RADAR MAINTENANCE PERSONNEL CLUSTER

DUTIES	VIDEO MAPPER REPAIRMEN (GRP1027, N=38)	ATC IFF/SIF REPAIRMEN (GRP1081, N=10)	AIRPORT SURVEIL- LANCE RADAR REPAIRMEN (GRP58, N=39)	SENIOR ATC RADAR REPAIRMEN (GRP877, N=244)	MOBILE RADAR REPAIRMEN (GRP617, N=14)	ATC RADAR REPAIRMEN (GRP664, N=34)	COMBAT COMMUNI- CATIONS GROUP PERSONNEL	ATC RADAR REPAIRMEN (GRP786, N=18)	SEARCH RADAR SECTION CHIEFS PERSONNEL	SEARCH RADAR SECTION CHIEFS PERSONNEL	SEARCH RADAR REPAIRMEN (GRP530, N=55)
							AIRPORT SURVEIL- LANCE RADAR REPAIRMEN (GRP58, N=39)	SENIOR ATC RADAR REPAIRMEN (GRP877, N=244)	MOBILE RADAR REPAIRMEN (GRP617, N=14)	ATC RADAR REPAIRMEN (GRP664, N=34)	SEARCH RADAR SECTION CHIEFS PERSONNEL
ORGANIZING AND PLANNING	*	*	*	*	*	*	1	1	*	7	7
DIRECTING AND IMPLEMENTING	*	*	*	*	*	*	2	*	1	9	7
INSPECTING AND EVALUATING	*	*	*	*	*	*	2	2	12	11	1
TRAINING	*	*	*	*	*	*	1	1	6	6	*
PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	4	3	5	4	6	3	13	13	14	4	6
PERFORMING OPERATIONS FUNCTIONS	4	4	4	3	9	5	2	2	2	6	5
PERFORMING SITE SUPPORT FUNCTIONS	1	2	2	1	3	3	2	2	2	2	*
PERFORMING RADAR SYSTEM INSTALLATION AND REMOVAL FUNCTIONS	2	2	*	2	6	9	2	2	*	*	*
PERFORMING GENERAL AND PREVENTIVE MAINTENANCE	17	18	17	14	28	15	12	12	12	24	27
MAINTAINING POWER AND DISTRIBUTION EQUIPMENT	4	3	3	3	4	2	2	2	2	4	5
MAINTAINING TIMING SYSTEMS	2	2	3	5	3	4	2	1	2	1	1
MAINTAINING TRANSMITTER SYSTEMS	11	11	10	10	10	12	5	13	10	12	12
MAINTAINING ANTENNA SYSTEMS	6	7	4	6	4	5	3	2	2	5	5
MAINTAINING RECEIVER SYSTEMS	20	14	18	17	11	8	7	9	12	18	18
MAINTAINING DISPLAY EQUIPMENT	11	9	13	11	5	8	6	3	13	12	12
MAINTAINING REMOTE EQUIPMENT	*	*	3	2	1	7	1	4	4	*	*
MAINTAINING ANCILLARY EQUIPMENT	6	8	10	9	4	8	6	6	7	5	5
MAINTAINING IDENTIFICATION FRIEND OR FOE (IFF) AND SELECTIVE IDENTIFICATION FEATURE (SIF) EQUIPMENT	6	14	5	7	*	6	3	4	2	*	*
MAINTAINING RANGE AND ANGLE TRACKING SYSTEMS	*	*	*	*	*	*	*	*	*	*	*
MAINTAINING COMPUTER SYSTEMS	*	*	*	*	*	*	*	*	*	*	*

* DENOTES LESS THAN ONE PERCENT

TABLE 11
BAKOKONG INFORMATION FOR JOB TYPES
IN THE ATC RADAR MAINTENANCE PERSONNEL CLUSTER

	AIRPORT										COMBAT						SEARCH		
	VIDEO MAPPER	ATC REPAIRMEN	ATC IPT REPAIRMEN	SURVEILL- ANCE RADAR	SENIOR ATC RADAR REPAIRMEN	MOBILE RAPCON REPAIRMEN	ATC RADAR SECTION PERSONNEL	SEARCH RADAR REPAIRMEN											
AVERAGE NUMBER OF TASKS PERFORMED:	236	241	239	417	230	366	354	292	158	93									
JOB DIFFICULTY INDEX:	17.6	11.7	18.3	21.5	16.1	20.4	15.2	6%	-	-	27%	50%							
AVERAGE PAYGRADE:	E-4	E-4	E-4	E-4, E-5	E-4, E-4	E-4, E-5	E-6	E-6	E-4	E-4	64%	50%							
PERCENT LOCATED IN CONUS:	46%	50%	69%	62%	86%	97%	67%	91%	76%	50%									
PERCENT OF PERSONS SUPERVISED:	1	-	-	2	-	1	5	4	1	-									
DAFSC:																			
30331	11%	40%	23%	9%	43%	15%	6%	-	-	-	27%	50%							
30351	75%	50%	72%	57%	36%	50%	6%	-	-	-	64%	50%							
30371	14%	10%	5%	34%	14%	35%	71%	-	-	-	9%	-							
30399	-	-	-	-	-	-	-	-	-	-	-	-							
303X2	-	-	-	-	-	-	-	-	-	-	-	-							
303X3	-	-	-	-	-	-	-	-	-	-	-	-							
AVERAGE MONTHS TAPS:																			
PERCENT OF FIRST ENLISTMENT PERSONNEL:	75	54	55	96	44	92	191	201	58	35									
PERCENT OF FIRST ENLISTMENT PERSONNEL:	29%	50%	48%	29%	71%	26%	-	-	-	-	55%	67%							
MAJOR COMMAND:																			
AFCC	96%	80%	92%	93%	71%	94%	89%	-	-	-	96%	92%							
TAC	-	-	3%	2%	14%	3%	6%	91%	-	-	-	-							
OTHER	4%	20%	5%	5%	15%	3%	5%	9%	4%	8%									
EQUIPMENT MAINTAINED:																			
AN/GPA-127 RADAR INDICATORS	4%	10%	3%	3%	7%	21%	63%	-	-	-	75%	17%							
AN/GPA-131 VIDEO MAPPING UNITS	61%	50%	90%	74%	50%	98%	67%	-	-	-	84%	50%							
AN/FPN-16/61 PRECISION APPROACH RADARS	18%	20%	82%	52%	29%	56%	-	-	-	-	33%	17%							
AN/FPN-4 AIRPORT SURVEILLANCE RADARS	7%	20%	62%	32%	29%	24%	-	-	-	-	67%	9%							
AN/GSH-34 VOICE RECORDER	-	-	-	-	67%	65%	-	-	-	-	-	-							
AN/HPN-14H MOBILE RAPCON	40%	20%	-	20%	58%	18%	11%	-	-	-	-	-							

TABLE III
JOB SATISFACTION DATA FOR JOB TYPES IN THE ATC RADAR MAINTENANCE PERSONNEL CLUSTER
(PERCENT MEMBERS RESPONDING)

TABLE IV
RELATIVE PERCENT TIME SPENT ON DUTIES BY JOB TYPES IN THE
JOB CONTROL PERSONNEL CLUSTER

DUTIES	FIRSTLINE JOB CONTROLLERS (GRP579, N=13)	JOB CONTROLLERS (GRP454, N=14)	JUNIOR JOB CONTROLLERS (GRP348, N=32)
ORGANIZING AND PLANNING	8	19	7
DIRECTING AND IMPLEMENTING	13	16	2
INSPECTING AND EVALUATING	8	4	2
TRAINING	8	*	1
PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	38	35	60
PERFORMING OPERATIONS FUNCTIONS	7	*	5
PERFORMING SITE SUPPORT FUNCTIONS	13	22	18
PERFORMING RADAR SYSTEM INSTALLATION AND REMOVAL FUNCTIONS	*	*	*
PERFORMING GENERAL AND PREVENTIVE MAINTENANCE	3	1	*
MAINTAINING POWER AND DISTRIBUTION EQUIPMENT	*	*	*
MAINTAINING TIMING SYSTEMS	*	*	*
MAINTAINING TRANSMITTER SYSTEMS	*	*	*
MAINTAINING ANTENNA SYSTEMS	*	*	*
MAINTAINING RECEIVER SYSTEMS	*	*	*
MAINTAINING DISPLAY EQUIPMENT	*	*	*
MAINTAINING REMOTE EQUIPMENT	*	*	*
MAINTAINING ANCILLARY EQUIPMENT	*	*	*
MAINTAINING IDENTIFICATION FRIEND OR FOE (IFF) AND SELECTIVE IDENTIFICATION FEATURE (SIF) EQUIPMENT	*	*	*
MAINTAINING RANGE AND ANGLE TRACKING SYSTEMS	*	*	*
MAINTAINING COMPUTER SYSTEMS	*	*	*

*DENOTES LESS THAN ONE PERCENT

TABLE V
BACKGROUND INFORMATION FOR JOB TYPES IN THE
JOB CONTROL PERSONNEL CLUSTER

	<u>FIRSTLINE JOB CONTROLLERS</u>	<u>JOB CONTROLLERS</u>	<u>JUNIOR JOB CONTROLLERS</u>
AVERAGE NUMBER OF TASKS PERFORMED:	28	18	8
JOB DIFFICULTY INDEX:	7.1	5.3	4.1
AVERAGE PAYGRADE:	E-5	E-4	E-4
PERCENT LOCATED IN CONUS:	62%	79%	81%
AVERAGE NUMBER OF PERSONS SUPERVISED:	2	-	-
<hr/>			
DAFSC:			
30331	-	-	-
30351	8%	28%	9%
30371	8%	-	6%
30332	-	-	-
30352	46%	14%	53%
30372	38%	21%	12%
30333	-	7%	-
30353	-	30%	20%
30373	-	-	-
30399	-	-	-
<hr/>			
MAJOR COMMAND:			
AFCC	27%	46%	22%
ATC	-	-	-
SAC	-	-	-
TAC	57%	54%	72%
USAFE	14%	-	-
PACAF	-	-	3%
AFSC	-	-	-
AAC	-	-	-
OTHER	2%	-	3%

TABLE VI

JOB SATISFACTION DATA FOR JOB TYPES IN THE
 JOB CONTROL PERSONNEL CLUSTER
 (PERCENT MEMBERS RESPONDING)

	<u>FIRSTLINE JOB CONTROLLERS</u>	<u>JOB CONTROLLERS</u>	<u>JUNIOR JOB CONTROLLERS</u>
<u>I FIND MY JOB:</u>			
NO RESPONSE	-	-	-
DULL	15	14	38
SO-SO	31	21	25
INTERESTING	54	65	37
<u>MY JOB UTILIZES MY TALENTS:</u>			
NO RESPONSE	-	-	-
NOT AT ALL TO VERY LITTLE	39	50	69
FAIRLY WELL OR BETTER	61	50	31
<u>MY JOB UTILIZES MY TRAINING:</u>			
NO RESPONSE	-	-	-
NOT AT ALL TO VERY LITTLE	62	81	84
FAIRLY WELL OR BETTER	38	19	16
<u>I PLAN TO REENLIST:</u>			
NO RESPONSE	-	-	-
NO, PLANNING TO RETIRE	16	14	6
NO OR PROBABLY NO	15	57	50
YES OR PROBABLY YES	69	29	44

TABLE VII
RELATIVE PERCENT TIME SPENT ON DUTIES BY JOB TYPES IN THE
RADAR MAINTENANCE SUPERVISORS CLUSTER

DUTIES	OPERATIONS / ANALYSIS NCOICs (GRP270, N=13)		NCOICs, RADAR MAINTENANCE (GRP 521, N=90)		NCOICs, RADAR MAINTENANCE CONTROL (GRP737, N=17)		RADAR MAINTENANCE SUPERINTENDENTS (GRP723, N=28)		TRAINING SUPERVISORS (GRP487, N=13)	
	ANALYSIS NCOICs (GRP270, N=13)	OPERATIONS / ANALYSIS NCOICs (GRP270, N=13)	NCOICs, RADAR MAINTENANCE (GRP 521, N=90)	NCOICs, RADAR MAINTENANCE (GRP 521, N=90)	RADAR MAINTENANCE CONTROL (GRP737, N=17)	RADAR MAINTENANCE SUPERINTENDENTS (GRP723, N=28)	RADAR MAINTENANCE SUPERINTENDENTS (GRP723, N=28)	TRAINING SUPERVISORS (GRP487, N=13)	RADAR MAINTENANCE SUPERINTENDENTS (GRP723, N=28)	TRAINING SUPERVISORS (GRP487, N=13)
ORGANIZING AND PLANNING	10	15	17	20	18	20	20	18	18	18
DIRECTING AND IMPLEMENTING	18	19	26	30	20	30	30	20	20	20
INSPECTING AND EVALUATING	13	24	21	34	19	34	34	19	19	19
TRAINING	13	10	12	5	5	5	5	32	32	32
PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	6	22	18	*	*	*	*	*	*	*
PERFORMING OPERATIONS FUNCTIONS	31	1	*	3	1	1	1	*	*	*
PERFORMING SITE SUPPORT FUNCTIONS	3	3	4	*	*	*	*	*	*	*
PERFORMING RADAR SYSTEM INSTALLATION AND REMOVAL FUNCTIONS	2	2	*	*	*	*	*	*	*	*
PERFORMING GENERAL AND PREVENTIVE MAINTENANCE	*	*	*	*	*	*	*	*	*	*
MAINTAINING POWER AND DISTRIBUTION EQUIPMENT	*	*	*	*	*	*	*	*	*	*
MAINTAINING TIMING SYSTEMS	*	*	*	*	*	*	*	*	*	*
MAINTAINING TRANSMITTER SYSTEMS	*	*	*	*	*	*	*	*	*	*
MAINTAINING ANTENNA SYSTEMS	*	*	*	*	*	*	*	*	*	*
MAINTAINING RECEIVER SYSTEMS	*	*	*	*	*	*	*	*	*	*
MAINTAINING DISPLAY EQUIPMENT	*	*	*	*	*	*	*	*	*	*
MAINTAINING REMOTE EQUIPMENT	*	*	*	*	*	*	*	*	*	*
MAINTAINING ANCILLARY EQUIPMENT	*	*	*	*	*	*	*	*	*	*
MAINTAINING IDENTIFICATION FRIEND OR FOE (IFF) AND SELECTIVE IDENTIFICATION FEATURE (SIF) EQUIPMENT	*	*	*	*	*	*	*	*	*	*
MAINTAINING RANGE AND ANGLE TRACKING SYSTEMS	*	*	*	*	*	*	*	*	*	*
MAINTAINING COMPUTER SYSTEMS	*	*	*	*	*	*	*	*	*	*

*DENOTES LESS THAN ONE PERCENT

TABLE VIII
BACKGROUND INFORMATION FOR JOB TYPES IN THE
RADAR MAINTENANCE SUPERVISORS CLUSTER

	OPERATIONS/ ANALYSIS NCOICs	NCOICs, RADAR MAINTENANCE	NCOICs, MAINTENANCE CONTROL	RADAR MAINTENANCE SUPERINTENDENTS		TRAINING SUPERVISORS
				57	53	
AVERAGE NUMBER OF TASKS PERFORMED:	70	106	55	11.7	11.9	
JOB DIFFICULTY INDEX:	9.9	12.8	10.7			
AVERAGE PAYGRADE:	E-5, E-6	E-6, E-7	E-6, E-7	E-7, E-8	E-6	
PERCENT LOCATED IN CONUS:	69%	81%	82%	82%	92%	
AVERAGE NUMBER OF PERSONS SUPERVISED:	4	5	4	4	6	
DAFSC:	-	-	-	-	-	
30331	-	6%	6%	-	-	8%
30351	-	17%	6%	-	-	23%
30371	-	1%	-	-	-	-
30332	-	-	-	-	-	15%
30352	-	23%	53%	-	-	8%
30372	-	-	-	-	-	8%
30333	38%	4%	6%	-	-	31%
30353	62%	24%	11%	21%	-	7%
30373	-	25%	18%	71%	-	-
30399	-	-	-	-	-	-
MAJOR COMMAND:	-	34%	29%	18%	18%	23%
AFCC	-	-	-	-	-	38%
ATC	92%	19%	6%	25%	15%	
SAC	8%	38%	59%	43%	24%	
TAC	-	6%	6%	14%	-	
USAFE	-	3%	-	-	-	
PACAF	-	-	-	-	-	
AFSC	-	-	-	-	-	
AAC	-	-	-	-	-	
OTHER	-	-	-	-	-	-

TABLE IX
JOB SATISFACTION DATA FOR JOB TYPES IN THE
RADAR MAINTENANCE SUPERVISORS CLUSTER
(PERCENT MEMBERS RESPONDING)

	OPERATIONS/ ANALYSIS NCOICs	NCOICs, RADAR MAINTENANCE CONTROL	NCOICs, MAINTENANCE CONTROL	RADAR MAINTENANCE SUPERINTENDENTS	TRAINING SUPERVISORS
<u>I FIND MY JOB:</u>					
NO RESPONSE	-	-	-	4	-
DULL	8	13	35	18	8
SO-SO	8	18	6	7	8
INTERESTING	84	69	59	71	84
<u>MY JOB UTILIZES MY TALENTS:</u>					
NO RESPONSE	-	-	-	4	-
NOT AT ALL TO VERY LITTLE	15	27	47	25	8
FAIRLY WELL OR BETTER	85	73	53	71	92
<u>MY JOB UTILIZES MY TRAINING:</u>					
NO RESPONSE	-	-	-	4	-
NOT AT ALL TO VERY LITTLE	39	24	47	29	23
FAIRLY WELL OR BETTER	61	76	53	67	77
<u>I PLAN TO REENLIST:</u>					
NO RESPONSE	-	3	-	-	15
NO, PLANNING TO RETIRE	-	34	47	43	43
NO OR PROBABLY NO	23	11	12	14	16
YES OR PROBABLY YES	77	52	41	43	69

TABLE X
RELATIVE PERCENT TIME SPENT ON DUTIES BY JOB TYPES IN THE
QUALITY CONTROL PERSONNEL CLUSTER

DUTIES	NCOICs, QUALITY CONTROL (GRP768, N=62)	MAJCOM QC PERSONNEL (GRP814, N=20)	QC INSPECTORS (GRP715, N=27)
ORGANIZING AND PLANNING	11	17	5
DIRECTING AND IMPLEMENTING	11	12	6
INSPECTING AND EVALUATING	44	58	60
TRAINING	6	3	2
PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	21	8	22
PERFORMING OPERATIONS FUNCTIONS	1	*	*
PERFORMING SITE SUPPORT FUNCTIONS	3	2	4
PERFORMING RADAR SYSTEM INSTALLATION AND REMOVAL FUNCTIONS	*	*	*
PERFORMING GENERAL AND PREVENTIVE MAINTENANCE	*	*	*
MAINTAINING POWER AND DISTRIBUTION EQUIPMENT	*	*	*
MAINTAINING TIMING SYSTEMS	*	*	*
MAINTAINING TRANSMITTER SYSTEMS	*	*	*
MAINTAINING ANTENNA SYSTEMS	*	*	*
MAINTAINING RECEIVER SYSTEMS	*	*	*
MAINTAINING DISPLAY EQUIPMENT	*	*	*
MAINTAINING REMOTE EQUIPMENT	*	*	*
MAINTAINING ANCILLARY EQUIPMENT	*	*	*
MAINTAINING IDENTIFICATION FRIEND OR FOE (IFF) AND SELECTIVE IDENTIFICATION FEATURE (SIF) EQUIPMENT	*	*	*
MAINTAINING RANGE AND ANGLE TRACKING SYSTEMS	*	*	*
MAINTAINING COMPUTER SYSTEMS	*	*	*

*DENOTES LESS THAN ONE PERCENT

TABLE XI
BACKGROUND INFORMATION FOR JOB TYPES IN THE
QUALITY CONTROL PERSONNEL CLUSTER

	<u>NCOICs, QUALITY CONTROL</u>	<u>MAJCOM QC PERSONNEL</u>	<u>QC INSPECTORS</u>
AVERAGE NUMBER OF TASKS PERFORMED:	73	50	28
JOB DIFFICULTY INDEX:	12.2	12.4	10.5
AVERAGE PAYGRADE:	E-6	E-7	E-6
PERCENT LOCATED IN CONUS:	71%	60%	89%
AVERAGE NUMBER OF PERSONS SUPERVISED:	1	1	-
<hr/>			
DAFSC:			
30331	-	-	-
30351	3%	-	-
30371	18%	35%	19%
30332	-	-	-
30352	5%	-	11%
30372	42%	25%	33%
30333	-	-	-
30353	3%	-	7%
30373	18%	10%	30%
30399	20%	30%	-
<hr/>			
MAJOR COMMAND:			
AFCC	24%	45%	19%
ATC	-	-	-
SAC	13%	-	21%
TAC	46%	20%	56%
USAFE	15%	10%	4%
PACAF	2%	-	-
AFSC	-	15%	-
AAC	-	5%	-
OTHER	-	5%	-

TABLE XII

JOB SATISFACTION DATA FOR JOB TYPES IN THE
QUALITY CONTROL PERSONNEL CLUSTER
(PERCENT MEMBERS RESPONDING)

	<u>NCOICs, QUALITY CONTROL</u>	<u>MAJCOM QC PERSONNEL</u>	<u>QC INSPECTORS</u>
<u>I FIND MY JOB:</u>			
NO RESPONSE	-	5	-
DULL	11	30	26
SO-SO	19	20	15
INTERESTING	70	45	59
<u>MY JOB UTILIZES MY TALENTS:</u>			
NO RESPONSE	-	-	-
NOT AT ALL TO VERY LITTLE	10	40	44
FAIRLY WELL OR BETTER	90	60	56
<u>MY JOB UTILIZES MY TRAINING:</u>			
NO RESPONSE	-	10	-
NOT AT ALL TO VERY LITTLE	13	30	52
FAIRLY WELL OR BETTER	87	60	48
<u>I PLAN TO REENLIST:</u>			
NO RESPONSE	-	-	-
NO, PLANNING TO RETIRE	37	45	44
NO OR PROBABLY NO	15	20	8
YES OR PROBABLY YES	48	35	48

APPENDIX B

TABLE I
REPRESENTATIVE TASKS PERFORMED BY ATC RADAR MAINT. PERSONNEL

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING (N=529)</u>
REMOVE OR REPLACE FUSES OR FUSE HOLDERS	96
PERFORM PMIs ON TRANSMITTER EQUIPMENT	94
PERFORM PMIs ON RECEIVER EQUIPMENT	93
PERFORM PMIs ON ANTENNA EQUIPMENT	92
REMOVE OR REPLACE SEMICONDUCTOR DEVICES	92
ADJUST POWER SUPPLIES OTHER THAN TRANSMITTER HIGH VOLTAGE POWER SUPPLIES	92
PERFORM SOLDERING ON CIRCUIT BOARDS	91
ALIGN AUTOMATIC FREQUENCY CONTROL (AFC) CIRCUITS	88
ADJUST VOLTAGE REGULATORS	88
REMOVE OR REPLACE CRYSTALS	86
PERFORM PMIs ON DISPLAY EQUIPMENT	85
PERFORM PMIs ON IFF/SIF EQUIPMENT	84
ADJUST VIDEO AMPLIFIERS	84
ALIGN INDICATOR SWEEP GENERATORS	83
TUNE MAGNETRON TRANSMITTERS	83
PERFORM PMIs ON TIMING EQUIPMENT	81
ALIGN PRECISION MAGNETRON TRANSMITTERS	79
ALIGN PRECISION MAP GENERATORS	79
ADJUST PARAMETRIC AMPLIFIERS	78
ALIGN RECEIVER LOCAL OSCILLATORS	78
DRIVE SMALL GOVERNMENT VEHICLES, SUCH AS PICKUPS OR PASSENGER VEHICLES	78
ALIGN PRECISION SWEEP GENERATORS	78
REMOVE OR REPLACE PRECISION MAP GENERATORS	77
ISOLATE AFC CIRCUIT MALFUNCTIONS	76
ALIGN PRECISION COMPOSITE VIDEO GENERATORS	76
REMOVE OR REPLACE PRECISION SWEEP GENERATORS	76
ALIGN ANGLE VOLTAGE GENERATORS	76
ISOLATE PRECISION MAP GENERATOR MALFUNCTIONS	76
ALIGN ANALOG MOVING TARGET INDICATOR (MTI) RECEIVERS	76
LUBRICATE ANTENNA DRIVE SYSTEMS	76
PREPARE MAINTENANCE DATA COLLECTION RECORD FORMS (AFTO FORM 349)	75

TABLE II

REPRESENTATIVE TASKS PERFORMED BY PRECISION APPROACH RADAR REPAIRMEN

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING (N=13)</u>
REMOVE OR REPLACE FUSES OR FUSE HOLDERS	100
REMOVE OR REPLACE RELAYS	100
REMOVE OR REPLACE ELECTRON TUBES	92
PERFORM PMIs ON RECEIVER EQUIPMENT	92
REMOVE OR REPLACE RESISTORS	85
PERFORM SOLDERING ON WIRING TERMINALS OR CONNECTOR PLUGS	85
PERFORM SOLDERING ON CIRCUIT BOARDS	77
ALIGN AUTOMATIC FREQUENCY CONTROL (AFC) CIRCUITS	77
ADJUST VOLTAGE REGULATORS	69
ADJUST TRANSMITTER STABLE LOCAL OSCILLATORS (STALO)	54
PREPARE MAINTENANCE DATA COLLECTION RECORD FORMS (AFTO FORM 349)	54
CLEAN OR REPLACE AIR OR MOISTURE FILTERS	54
PERFORM PMIs ON DISPLAY EQUIPMENT	54
PERFORM PMIs ON ANTENNA EQUIPMENT	54
DRIVE SMALL GOVERNMENT VEHICLES, SUCH AS PICKUPS OR PASSENGER VEHICLES	46
PERFORM PMIs ON REMOTING EQUIPMENT	46
ADJUST TRANSMITTER HIGH VOLTAGE POWER SUPPLIES	46
PERFORM AUTOMATIC FREQUENCY CONTROL CHECKS	46
PERFORM POWER SUPPLY OPERATIONAL CHECKS	46
ADJUST VIDEO AMPLIFIERS	46
REMOVE OR REPLACE TRANSFORMERS	46
ALIGN PRECISION MAP GENERATORS	38
REMOVE OR REPLACE PRECISION MAP GENERATORS	38
PERFORM PMIs ON TIMING EQUIPMENT	38
PERFORM OPERATIONAL CHECKS OF TRANSMITTERS	38
REMOVE OR REPLACE PRECISION COMPOSITE VIDEO GENERATORS	38
ADJUST STAGGER PRF SYSTEMS	38
ALIGN PRECISION MAGNETRON TRANSMITTERS	31
ALIGN ANGLE VOLTAGE GENERATORS	31
INTERPRET PLANS, DIAGRAMS, OR SCHEMATICS	31
PERFORM OPERATIONAL CHECKS OF IFF/SIF RADAR SYSTEMS	31

TABLE III
REPRESENTATIVE TASKS PERFORMED BY ANCILLARY MAINTENANCE PERSONNEL

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING (N=10)</u>
REMOVE OR REPLACE FUSES OR FUSE HOLDERS	100
PERFORM SOLDERING ON WIRING TERMINALS OR CONNECTOR PLUGS	100
ALIGN VIDEO MAPPER SWEEP GENERATORS	100
ALIGN INDICATOR DEFLECTION AMPLIFIERS	100
ALIGN INDICATOR RANGE MARK GENERATORS	100
ALIGN VIDEO MAPPER DEFLECTION AMPLIFIERS	100
ALIGN VIDEO MAPPERS	100
REMOVE OR REPLACE RESISTORS	100
ALIGN INDICATOR SWEEP GENERATORS	100
ALIGN INDICATOR DEFLECTION COILS	100
REMOVE OR REPLACE CATHODE-RAY TUBES	100
ALIGN INDICATOR FOCUS COILS	100
REMOVE OR REPLACE ELECTRON TUBES	90
PERFORM AREA BEAUTIFICATION	90
PERFORM SOLDERING ON CIRCUIT BOARDS	90
ALIGN VIDEO MAPPER VIDEO BIAS FOCUS CIRCUITRY	90
ALIGN VIDEO MAPPER SYNCHRONIZING CIRCUITRY	90
ALIGN INDICATOR CURSOR GENERATORS	90
ISOLATE VIDEO MAPPER SWEEP GENERATOR MALFUNCTIONS	90
REMOVE OR REPLACE RELAYS	90
ALIGN INDICATOR VIDEO MIXERS	90
REMOVE OR REPLACE SWITCHES	90
REMOVE OR REPLACE INDICATOR SWEEP GENERATORS	90
REMOVE OR REPLACE CAPACITORS	90
ALIGN PRECISION MAP GENERATORS	80
ALIGN INDICATOR SERVO AMPLIFIERS	80
ALIGN VIDEO MAPPER INTENSITY CUTOFF CIRCUITRY	80
PREPARE MAINTENANCE DATA COLLECTION RECORD FORMS (AFTO FORM 349)	80
ISOLATE VIDEO MAPPER VIDEO BIAS FOCUS CIRCUITRY MALFUNCTIONS	80
REMOVE OR REPLACE VIDEO MAPPER DEFLECTON AMPLIFIERS	80
REMOVE OR REPLACE SEMICONDUCTOR DEVICES	80
ISOLATE INDICATOR SWEEP GENERATOR MALFUNCTIONS	80
REMOVE OR REPLACE INDICATOR RANGE MARK GENERATORS	80
REMOVE OR REPLACE INDICATOR VIDEO MIXER SUBASSEMBLIES	80
REMOVE OR REPLACE TRANSFORMERS	80

TABLE IV
REPRESENTATIVE TASKS PERFORMED ELECTRICAL INSTALLATION TEAM MEMBERS

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING (N=13)</u>
INSTALL OR REMOVE INTERCONNECTING CABLES	100
DRILL AND TAP HOLES FOR MOUNTING EQUIPMENT	100
INSTALL OR REMOVE RADAR SYSTEM WIRING OR CABLES	92
INVENTORY SCHEME MATERIALS	92
INSTALL OR DISASSEMBLE PLAN POSITION INDICATOR SYSTEMS	92
INSTALL OR DISASSEMBLE PRECISION APPROACH RADAR SYSTEMS	92
INSTALL OR DISASSEMBLE FIXED RADAR ANTENNA SYSTEMS	92
INSPECT SCHEME MATERIALS	92
INSTALL OR REMOVE CABLE JUNCTION BOXES	92
CONDUCT OPERATIONAL TESTS OF NEWLY INSTALLED EQUIPMENT	92
INSTALL OR REMOVE EQUIPMENT CABINETS	85
INSTALL OR REMOVE RADAR REFLECTORS	85
INSTALL OR DISASSEMBLE WAVEGUIDE SYSTEMS	85
INSTALL OR DISASSEMBLE PRECISION ELEVATION OR AZIMUTH ANTENNA ASSEMBLIES	85
DRIVE SMALL GOVERNMENT VEHICLES, SUCH AS PICKUPS OR PASSENGER VEHICLES	85
INSTALL OR DISASSEMBLE FIXED IFF/SIF RADAR SYSTEMS	85
INSTALL OR REMOVE CONDUIT OR WIREWAYS	85
REVIEW SCHEME PACKAGES	85
CONDUCT SHAKEDOWN TESTS	85
INSTALL OR DISASSEMBLE FIXED SURVEILLANCE RADAR SYSTEMS	85
PERFORM SOLDERING ON WIRING TERMINALS OR CONNECTOR PLUGS	77
INSTALL OR REMOVE OBSTRUCTION LIGHTS	77
INSTALL OR DISASSEMBLE BRITE RADAR INDICATING TOWER EQUIPMENT SYSTEMS	77
FABRICATE CABLE HARNESSSES	69
FABRICATE CONDUITS	69
INSTALL OR REMOVE SHELTER OR VAN ACCESSORIES, SUCH AS WALKWAYS, LADDERS, OR STEPS	69
LACE WIRING ASSEMBLIES	69
LEVEL SHELTERS OR VANS	69
DRAW EQUIPMENT FOR INSTALLATION PROJECTS	69
PACK OR UNPACK SUPPORT EQUIPMENT FOR SHIPMENT	69
ORIENT NEWLY ASSIGNED PERSONNEL	69

TABLE V
REPRESENTATIVE TASKS PERFORMED BY JOB CONTROL PERSONNEL

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING (N=72)</u>
PREPARE JOB/STATUS DOCUMENT FORMS (AF FORM 264)	93
MAINTAIN STATUS BOARDS, GRAPHS, OR CHARTS	78
ISSUE JOB CONTROL NUMBERS	74
MAINTAIN EQUIPMENT STATUS REPORTS	68
DETERMINE WORK PRIORITIES	53
DOCUMENT EQUIPMENT CANNIBALIZATION	53
PREPARE BRIEFINGS	46
PARTICIPATE IN MEETINGS, SUCH AS STAFF MEETINGS, BRIEFINGS, CONFERENCES, OR WORKSHOPS	35
PREPARE APRs	31
PERFORM WORK AREA SECURITY INSPECTIONS	29
DISPATCH MAINTENANCE PERSONNEL	28
CONTROL REAL TIME EQUIPMENT OPERATIONS OR MAINTENANCE	25
PREPARE PUNCH CARD TRANSCRIPT FORMS (AF FORM 1530)	25
TYPE RECORDS, REPORTS, OR CORRESPONDENCE	25
CONDUCT OJT	25
COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED MATTERS	25
PREPARE JOINT MESSAGE FORMS (DD FORM 173)	24
UPDATE EQUIPMENT OPERATIONS OR MAINTENANCE SCHEDULES	24
MAINTAIN PREVENTIVE MAINTENANCE INSPECTIONS LISTINGS	22
DIRECT DEVELOPMENT OR MAINTENANCE OF STATUS BOARDS, GRAPHS, OR CHARTS	22
CONDUCT BRIEFINGS OTHER THAN CREW BRIEFINGS	22
ORIENT NEWLY ASSIGNED PERSONNEL	22
DIRECT MAINTENANCE OR UTILIZATION OF EQUIPMENT	19
CONDUCT CREW SHIFT CHANGEOVER BRIEFINGS	18
MAINTAIN TRAINING RECORDS, CHARTS, OR GRAPHS	18
DEVELOP EQUIPMENT OPERATIONS OR MAINTENANCE SCHEDULES	18
REVIEW CORRESPONDENCE OR REPORTS	18
INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	18
DIRECT MAINTENANCE OR FACILITIES OF WORK AREAS	17
DRIVE SMALL GOVERNMENT VEHICLES, SUCH AS PICKUPS OR PASSENGER VEHICLES	17

TABLE VI
REPRESENTATIVE TASKS PERFORMED BY RADAR MAINT. SUPERVISORS

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING (N=177)</u>
PARTICIPATE IN MEETINGS, SUCH AS STAFF MEETINGS, BRIEFINGS, CONFERENCES, OR WORKSHOPS	96
COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED MATTERS	95
ORIENT NEWLY ASSIGNED PERSONNEL	93
PREPARE APRs	90
INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	90
DETERMINE WORK PRIORITIES	88
REVIEW CORRESPONDENCE OR REPORTS	81
INDORSE AIRMAN PERFORMANCE REPORTS (APR)	80
ASSIGN PERSONNEL TO DUTY POSITIONS	79
SCHEDULE TEMPORARY DUTY, LEAVES, OR PASSES	79
EVALUATE INDIVIDUALS FOR RECOGNITION	77
PREPARE REPLIES TO INSPECTION REPORTS	77
WRITE CORRESPONDENCE	76
PLAN WORK ASSIGNMENTS	76
ESTABLISH WORK SCHEDULES	73
DETERMINE REQUIREMENTS FOR SPACE, PERSONNEL, EQUIPMENT, OR SUPPLIES	73
PREPARE RECOMMENDATIONS FOR AWARDS OR DECORATIONS	71
MAINTAIN TRAINING RECORDS, CHARTS, OR GRAPHS	68
COUNSEL TRAINEES ON TRAINING PROGRESS	66
IMPLEMENT SELF-INSPECTION PROGRAMS	64
DERERMINE OJT TRAINING REQUIREMENTS	64
DIRECT MAINTENANCE OF FACILITIES OR WORK AREAS	62
PERFORM SELF-INSPECTIONS	60
CONDUCT BRIEFINGS OTHER THAN CREW BRIEFINGS	60
ASSIGN ON-THE-JOB TRAINING (OJT) TRAINERS	59
INITIATE PERSONNEL ACTION REQUESTS	59
DEVELOP WORK METHODS OR PROCEDURES	58
EVALUATE INSPECTION REPORTS OR PROCEDURES	58
ESTABLISH ORGANIZATIONAL POLICIES, OFFICE INSTRUCTIONS (OI), OR STANDARD OPERATING PROCEDURES (SOP)	57

TABLE VII
REPRESENTATIVE TASKS PERFORMED BY QUALITY CONTROL PERSONNEL

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING (N=114)</u>
PERFORM EQUIPMENT INSPECTIONS	94
PREPARE INSPECTION REPORTS	90
EVALUATE COMPLIANCE WITH PERFORMANCE STANDARDS	89
EVALUATE INSPECTION REPORTS OR PROCEDURES	85
EVALUATE MAINTENANCE PROCEDURES	84
PERFORM PERSONNEL PROFICIENCY EVALUATIONS	82
REVIEW CORRESPONDENCE OR REPORTS	82
EVALUATE CORROSION CONTROL PROGRAMS	82
PARTICIPATE IN MEETINGS, SUCH AS STAFF MEETINGS, BRIEFINGS, CONFERENCES, OR WORK SHOPS	82
EVALUATE TECHNICAL ORDER IMPROVEMENT REPORTS	79
PREPARE ROUTING AND REVIEW OF QUALITY CONTROL REPORTS FORMS (AF FORM 2419)	75
ANALYZE TRENDS IN SYSTEM MALFUNCTIONS	75
PREPARE QUALITY CONTROL INSPECTION SUMMARY FORMS (AF FORM 2420)	74
DEVELOP INSPECTION SCHEDULES	74
PERFORM DEFICIENCY ANALYSIS	73
EVALUATE MATERIAL DEFICIENCY REPORTS	71
ESTABLISH INSPECTION PROCEDURES	70
PERFORM SELF-INSPECTIONS	69
EVALUATE PERFORMANCE OF NEWLY INSTALLED EQUIPMENT	69
EVALUATE MAINTENANCE OF PUBLICATION LIBRARIES	68
IMPLEMENT QUALITY CONTROL STANDARDS	68
WRITE CORRESPONDENCE	67
PERFORM ACTIVITY INSPECTIONS	66
PERFORM ACCEPTANCE INSPECTIONS	65
PREPARE REPLIES TO INSPECTION REPORTS	63
MAINTAIN TECHNICAL ORDER FILES	56
PREPARE TECHNICAL ORDER SYSTEM PUBLICATION IMPROVEMENT REPORT AND REPLY FORMS (AFTO FORM 22)	56
CERTIFY STATUS OF REPARABLE, SERVICEABLE, OR CONDEMNED PARTS	56
EVALUATE MAINTENANCE DATA OR EQUIPMENT RECORD FORMS	56
TYPE RECORDS, REPORTS, OR CORRESPONDENCE	52
PERFORM FACILITY INSPECTIONS	51

TABLE VIII
REPRESENTATIVE TASKS PERFORMED BY RESIDENT COURSE INSTRUCTORS

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING (N=52)</u>
PREPARE LESSON PLANS	100
SCORE TESTS	100
ADMINISTER TESTS	92
CONDUCT RESIDENT COURSE CLASSROOM TRAINING	90
COUNSEL TRAINEES ON TRAINING PROGRESS	79
WRITE TEST QUESTIONS	75
DEVELOP TRAINING AIDS	75
EVALUATE PROGRESS OF RESIDENT COURSE STUDENTS	71
CONDUCT SAFETY TRAINING	52
MAINTAIN TRAINING RECORDS, CHARTS, OR GRAPHS	52
COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED MATTERS	42
PARTICIPATE IN MEETINGS, SUCH AS STAFF MEETINGS, BRIEFINGS, CONFERENCES, OR WORKSHOPS	37
EVALUATE TRAINING METHODS OR TECHNIQUES	29
DETERMINE RESIDENT COURSE TRAINING REQUIREMENTS	29
PROCURE TRAINING AIDS, SPACE, OR EQUIPMENT	27
PREPARE TECHNICAL ORDER SYSTEM PUBLICATION IMPROVEMENT REPORT AND REPLY FORMS (AFTO FORM 22)	25
MAINTAIN STUDY REFERENCE FILES	21
MAINTAIN TECHNICAL ORDER FILES	19
PREPARE TRAINING REPORTS	19
INVENTORY SUPPLIES, EQUIPMENT, OR TOOLS	19
DEVELOP TRAINING COURSE OR CAREER DEVELOPMENT COURSE (CDC) CURRICULUM MATERIALS	17
CONDUCT SECURITY TRAINING	17
SELECT INDIVIDUALS FOR SPECIALIZED TRAINING	15
CONDUCT OJT	13
MAINTAIN ADMINISTRATIVE OR RECORDS FILES	13
EVALUATE COMPLIANCE WITH PERFORMANCE STANDARDS	12
EVALUATE INDIVIDUALS FOR RECOGNITION	12
EVALUATE INSTRUCTOR PERFORMANCE	12
EVALUATE OJT TRAINERS OR TRAINEES	12
INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	12

**DAT
FILM**